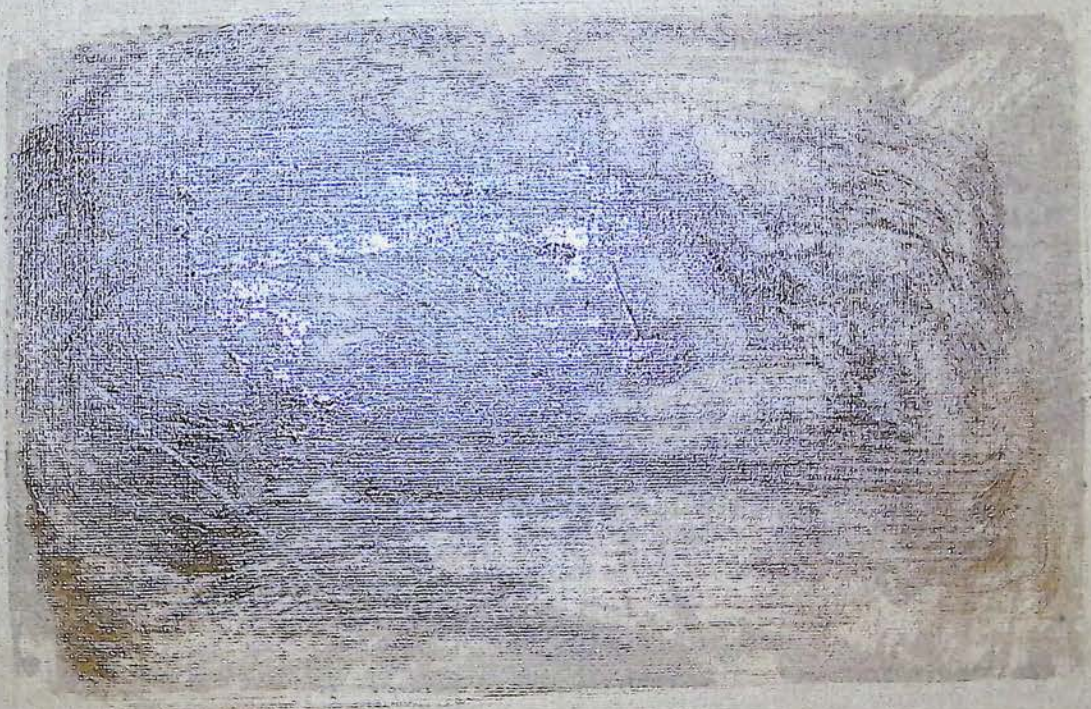


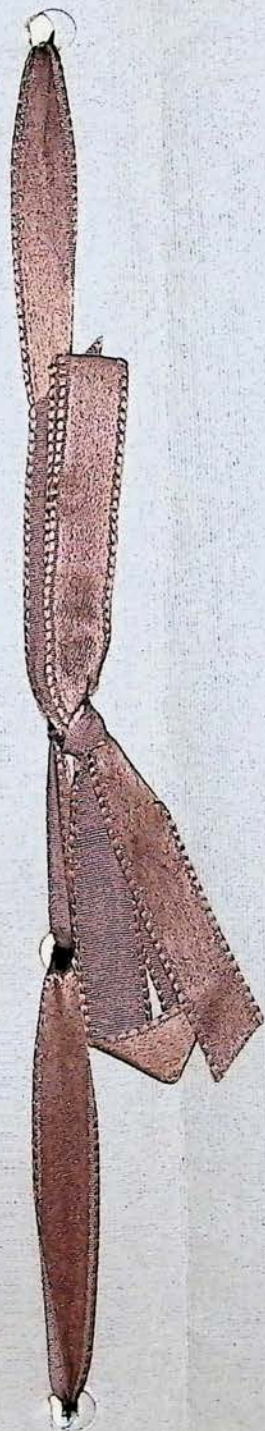
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REPORT NO. 5849-C
TO
METROPOLITAN RAPID TRANSIT COMMISSION
ON
COMPARATIVE STUDIES
OF
PROPOSED ALTERNATE RAPID TRANSIT PLANS
FOR
NORTHERN QUEENS COUNTY AND VICINITY
LONG ISLAND, NEW YORK
INCLUDING EFFECTS UPON OTHER TRANSIT OPERATIONS

January thirty-first
Nineteen fifty-seven

LETTER OF TRANSMITTAL



DAY & ZIMMERMANN, INC.

ENGINEERS

NEW YORK PHILADELPHIA CHICAGO

DAY & ZIMMERMANN BUILDING
1700 SANSON STREET
PHILADELPHIA 3

FILE NO 5849-C

January thirty-first
Nineteen fifty-seven

Metropolitan Rapid Transit Commission
50 Broadway
New York, New York

Gentlemen:

We are submitting herewith, in accordance with our contract of March 7, 1956 and supplemental instructions with respect thereto, our Report No. 5849-C. The report presents the results of studies of three alternate proposed plans for extension of the New York City rapid transit system in the northeastern section of Queens County and vicinity.

The plans of the extensions studied in detail are based on (1) integration of the Port Washington Branch of the Long Island Railroad into the New York City transit system and (2) a rapid transit extension on the proposed Horace Harding Expressway, connecting with the New York City transit system via two alternate routes.

In the studies we have developed estimates of the financial results of operation for each route projected to future years and have given consideration to their respective public benefits and the existing general developments or requirements, which bear upon the practicability of their construction. We have also made preliminary studies of three additional alternate routes generally paralleling the Horace Harding Expressway as possible substitutes for a rapid transit line on that highway.

Our detailed estimates for the three basic routes indicate that none of them would be self-supporting in the years considered at present New York City fares and cost

levels, including consideration of a second fare in Nassau County on the Port Washington rapid transit line studied. We have also prepared estimates of the effects of the operation of the proposed lines on other facilities and on the overall finances of New York City.

In Section V of the report we have included approximate indications of the comparative operating results of the three study routes paralleling the Horace Harding Expressway.

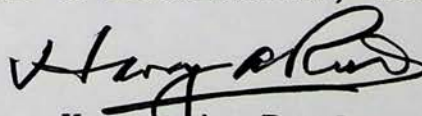
Our general conclusions are that the use of the Port Washington Branch of the LIRR as a rapid transit extension would be somewhat less burdensome to the City of New York finances but that the Horace Harding Expressway route would be superior in matters of public benefits including the avoidance of disadvantages to present railroad passengers with respect to increased travel time. However, at the present stage of planning and actual construction on the Horace Harding Expressway, we do not believe that construction of a rapid transit line on this highway would be practicable. Of the three alternate routes to the Horace Harding Expressway line we believe the choice would be between Routes Nos. 1 and 2, but that either of these routes would result in greater deficits than the proposed Horace Harding Expressway route.

The report also presents the results of a separate study of past and future trends of passenger traffic on the entire Long Island Railroad system.

We wish to express our thanks and appreciation to public officials of Queens and Nassau Counties and to the officials and staff of the Long Island Rail Road Company who cooperated generously with us in supplying essential data for these studies.

Very truly yours,

DAY & ZIMMERMANN, Inc.



Harry A. Reed
Vice President

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I. INTRODUCTION

REPORT NO. 5849-C

TO

METROPOLITAN RAPID TRANSIT COMMISSION

ON

COMPARATIVE STUDIES

OF

PROPOSED ALTERNATE RAPID TRANSIT PLANS

FOR

NORTHERN QUEENS COUNTY AND VICINITY

LONG ISLAND, NEW YORK

INCLUDING EFFECTS UPON OTHER TRANSIT OPERATIONS

Philadelphia, Penna.
January thirty-first
Nineteen fifty-seven

I. INTRODUCTION

The results of our studies of three alternate plans for the extension of rapid transit service from the New York City rapid transit system into the northeastern section of Queens County, and in one case also extending into Northern Nassau County, are presented in this report.

The routes studied, as specified in general terms in our assignment, are based on (1) integration of the Port Washington Branch of the Long Island Railroad into the New York City transit system, and (2) a rapid transit

extension on the proposed Horace Harding Expressway, connecting with the New York City transit system via two alternate routes.

Early in the course of our studies it was developed that the final construction plans, awarding of contracts and actual construction work on the Horace Harding Expressway had progressed to such a degree that the effectuation of the extensive revisions of the Expressway necessary to accommodate a rapid transit line would be very unlikely. Our studies of the proposed Horace Harding rapid transit line were, however, continued to completion at the direction of representatives of the Metropolitan Rapid Transit Commission.

The usefulness of our studies may therefore be limited to whatever general comparative value they may have in considering the potentialities of the alternate plan of integrating the Port Washington line, or their general application to possible consideration of an alternate rapid transit route on other streets approximately paralleling the Horace Harding Expressway.

At the request of the Commission's representatives, we have made a preliminary field reconnaissance of the area adjacent to the proposed Horace Harding route and have indicated several possible routes for future study. Any of these routes would probably be principally of subway construction and would require considerably larger investments than the Horace Harding Expressway route.

Our detailed studies presented herein, are designated as Plans A, B and C, as follows:

Plan A - Port Washington Branch of LIRR -
integration with New York City transit system

Plan B - Proposed Horace Harding Expressway -
rapid transit extension, connecting with
a subway route into Manhattan via a new
East River Tunnel at 76th Street

Plan C - Proposed Horace Harding Expressway -
rapid transit extension, connecting with
the existing IRT Flushing Line

II. PROPOSED RAPID TRANSIT PLANS

For each of these plans, our report presents and summarizes our studies of their respective benefits and potential operating results. In all cases the studies are based on revenues, operating expenses and construction costs specifically related to the proposed extensions and the total additional service required by them, including the costs of the additional cars and car-mileage required to operate the added service to 34th Street and Sixth Avenue in Plans A and B and to Times Square in Plan C. The costs and operations specifically pertinent to the rapid transit trunk lines, to which the extensions are proposed to be connected for service to Manhattan, are excluded. In Plan B, we included the estimated cost of maintenance of way and structures on the portion of the Long Island Railroad utilized, about 4 miles of double track line.

The report also includes the results of studies of the competitive effect of the proposed plans on the traffic and revenues of existing facilities, and projected trends of the passenger traffic of the entire Long Island Railroad system.

The text of the report is presented in seven sections as follows:

- I. INTRODUCTION
- II. PROPOSED RAPID TRANSIT PLANS
- III. PUBLIC BENEFITS
- IV. ESTIMATED PASSENGERS AND REVENUES
- V. ESTIMATED OPERATING RESULTS
- VI. PROJECTION OF LIRR PASSENGER TRAFFIC
- VII. SUMMARY AND CONCLUSIONS

Following the text are a number of maps, charts and tables presenting the bases and results of the studies, all of which are referred to and explained in the text.

II. PROPOSED RAPID TRANSIT PLANS

II. PROPOSED RAPID



II. PROPOSED RAPID TRANSIT PLANS

Alternate Rapid Transit Plans Studied

The proposed routes for which studies are presented in this report are shown on Maps Nos. 1, 2 and 3. The routes are as follows:

Plan A - A rapid transit extension utilizing the Port Washington Branch of the Long Island Railroad between Port Washington Station in Nassau County and a point west of Woodside Station in Queens County. At this point the proposed route would connect with the projected 76th Street East River Tunnel line assumed for the purpose of this study to connect with the Sixth Avenue IND Subway.

Plan B - A rapid transit extension via the route of the proposed Horace Harding Expressway starting at Marathon Parkway, near City Line, and extending westward to a connection with the Port Washington Branch of the Long Island Railroad near the old World's Fair Station, thence westward on the Railroad to a point west of Woodside Station. At this point the proposed route would connect with the projected 76th Street East River Tunnel line as in Plan A.

Plan C - A rapid transit extension via the route of the proposed Horace Harding Expressway starting at Marathon Parkway, near City Line, and extending westward to a connection with the existing IRT Flushing line near 111th Street Station.

Plans A and B would connect with the route of the 76th Street East River Tunnel subway line originally projected by the City of New York as an extension of the authorized Second Avenue Subway system. For the purposes of our studies we have assumed that this route would connect with the IND

Sixth Avenue Subway because of the apparently more imminent possibility of the construction of such a route than of the Second Avenue Subway.

Features of Individual Plans

Plan A

Under this plan shown on Map No. 1, the Long Island Railroad's Port Washington Branch from Harold Tower, near the Sunnyside Yards, to Port Washington, would be acquired for rapid transit operation and the present railroad service would be discontinued. This line is presently double tracked from Harold Tower to Great Neck, with a single track running from Great Neck to the terminal at Port Washington. The line totals 15.49 route miles, of which 4.04 miles are in Nassau County.

West of Woodside, the rapid transit line would leave the railroad right of way and connect with a new rapid transit subway running through the projected 76th Street East River Tunnel to a connection with the existing Sixth Avenue IND subway at 53rd Street. This connecting subway route in Manhattan would be via 76th Street, 2nd Avenue, 57th Street and 6th Avenue in accordance with a study plan of the Transit Authority. Turn-back service would be provided at Woodside for trains from Manhattan.

It is proposed to initially operate the single track section in Nassau County as a single track line by means of installing a passing siding. Later, when double track operation is required, it would be necessary to double track this section, including the construction of a 700-ft single track viaduct over Manhasset Creek, west of Manhasset Station.

In order to rebuild the present Port Washington railroad line to rapid transit line requirements, the following modifications would be necessary:

1. Installation of a crossover east of Woodside Station to permit turnback of trains from Manhattan terminating at Woodside.
2. Elimination of the grade crossing west of Little Neck Station.
3. Installation of an 1,800-ft passing siding east of Manhasset Station for initial single track operation and later double tracking of the single track portion, including construction of an additional single track viaduct over Manhasset Creek.
4. Replacement of the signal system to permit closer operation of trains.
5. Construction of new stations at Manhasset and Plandome. Each of these stations would include a single platform 540 ft long, of car floor height.
6. Construction of a new 3-platform terminal station at Port Washington. Each platform would be 540 ft long, of car floor height. The present waiting-room building would be utilized, but would be revamped and equipped with station fare-collection controls.

7. New third rail would be required at all new track locations.
8. Installation of fare-collection control facilities at all stations.
9. Provision of additional parking facilities at Plandome, Douglaston and Bayside Stations.

Under Plan A, two 15¢ fares would be collected from persons riding across the City Line. Westbound passengers boarding in Nassau County would pay 30¢, with 15¢ being refunded if they left the train at a station within Nassau County. Westbound passengers boarding in Queens would pay 15 cents. Eastbound passengers boarding in Manhattan or Queens would pay 15¢, and an additional 15¢ at the exits of any of the Nassau County stations. Eastbound passengers boarding trains in Nassau County would pay 15¢ at the exits of any of the Nassau County stations.

Plan B

Under this plan shown on Map No. 2, it is proposed that a two-track rapid transit surface line be constructed in a widened median strip in the bed of the projected Horace Harding Expressway, extending westward from Marathon Parkway to about Lawrence Street near Flushing Meadow Park. At this point the line would leave the Horace Harding Expressway, and extend in a northwesterly direction across Flushing Meadow Park connecting with the Port Washington Branch of the Long Island Railroad.

Railroad west of the old World's Fair Station. West of this point it would use the two tracks of the Port Washington Branch jointly with the Long Island Railroad to a point west of Woodside Station, where the rapid transit line would leave the Railroad and connect with the proposed new subway via the 76th Street East River Tunnel route to the Sixth Avenue subway as in Plan A.

The extension covered by Plan B would include 3.94 route miles over jointly used Long Island Railroad tracks, and 6.99 route miles through Flushing Meadow Park and on the Horace Harding Expressway.

In order to provide sufficient width in the median strip of the Horace Harding Expressway for a two-track rapid transit line, it would be necessary to widen the overall width of the Expressway by approximately 40 feet. This additional width, plus the 11 to 12 feet now planned for the median strip, would provide the necessary right of way required for the proposed rapid transit line. To isolate the rapid transit line from vehicular lanes, a 4-ft high concrete barrier would be erected on each side of the rapid transit right of way.

Provision has been made in the plan for the construction of eleven stations at important intersecting highways. Waiting rooms would be located either under or over the rapid transit tracks as required by the relative elevations of the intersecting highways. Provision would also be made for a tail track and car storage east of the terminus of the line

It is proposed that rapid transit passengers would be picked up and discharged at Woodside Station on the Long Island Railroad but not at Elmhurst or Corona Stations.

As the rapid transit line under this plan does not extend into Nassau County, a single fare has been assumed to apply to all passengers.

Plan C

This plan shown on Map No. 3, proposes a two-track rapid transit line in the widened median strip of the projected Horace Harding Expressway extending westward from Marathon Parkway to about Lawrence Street near Flushing Meadow Park, identical with the routing in Plan B. At this point the line would leave the Horace Harding Expressway and extend in a northwesterly direction across Flushing Meadow Park, crossing the Port Washington Branch of the Long Island Railroad, and connecting with the IRT Flushing line at about 114th Street.

The length of the extension covered by Plan C is 6.99 miles from Marathon Parkway to its connection with the IRT Flushing line.

Construction features and the locations of the eleven stations on the Horace Harding Expressway would be the same as proposed for Plan B.

Service on the IRT Flushing line from Times Square would be divided between the proposed extension and the

existing line to Main Street, Flushing. A single fare has been assumed to apply to all passengers.

Construction Costs or Physical Value

Plan A

The underlying premise of this plan is that the Port Washington Branch can be acquired from the Long Island Railroad for rapid transit purposes. As a basis for an approximate estimate of annual carrying charges, it is necessary that some indicative measure of value be assigned to the facilities to be acquired. We have made no investigation of the possible negotiated costs of acquisition, but have used the Long Island Railroad Company's estimate of cost of reproduction new, less accrued depreciation, as an indication of the general magnitude of the value of the existing physical property of the Port Washington Branch to be supported under the rapid transit plan.

The estimated reproduction cost new, less accrued depreciation, of the Port Washington Branch as of December 31, 1954, is as follows:

* Harold Tower to Win Tower	2.07 miles	\$1,210,000
Ø Win Tower to Port Washington	14.06 miles	7,240,000
Total	16.13 miles	\$8,450,000

* Represents the distance in which the two tracks of the Port Washington Branch independently parallel the four tracks of the Main line of the LIRR on the same right of way. Woodside Station is included in this stretch of track.

Ø Represents the length of the portion of the Port Washington Branch east of the point of divergence from the Main line.

It should be noted here that the length of the line to be acquired (from Harold Tower to Port Washington) is 16.13 miles, whereas the length of the line that would be used for rapid transit purposes is 15.49 miles. The difference of .64 miles represents the distance from Harold Tower to the proposed point of connection with the projected 76th Street tunnel route. Harold Tower is the Railroad's designated starting point of the Port Washington Branch.

To the estimated value of the facilities to be acquired, on the basis stated above, we have added our estimates of the cost of additional facilities required, including the connection at Woodside, elimination of the grade crossing west of Little Neck Station, rehabilitation or rebuilding of passenger stations, replacement of the signal system, additional trackage and third rail for turnback service east of Woodside and for a passing siding west of Manhasset, and additional parking facilities. The combined estimate, exclusive of cars, is shown on Table F, and totals \$11,563,000, which contemplates initial single track operation in Nassau County. Addition of a second track between Great Neck and Port Washington, including a 700-foot viaduct over Manhasset Creek, would add \$3,479,000 to the above estimate. The total estimate based on complete double track operation in later years, therefore, amounts to \$15,042,000.

Plan B

Our construction estimate for this plan assumes that the new rapid transit line would be built in the center of the proposed Horace Harding Expressway, and that additional right of way can be purchased to make this possible. The estimate includes the additional cost of land for the widened expressway, the cost of bridges at grade separations, passenger stations, electric substations, parking areas, and all necessary line equipment, except cars. Included are provisions for turnback service east of Woodside Station, and for tail track and some car storage east of Marathon Parkway. The total estimated cost, exclusive of cars, is shown on Table F-1, and amounts to \$21,145,000 for initial operation.

Plan C

The construction cost estimate for Plan C is a variation of the estimate for Plan B. Under Plan C, the proposed Horace Harding Expressway rapid transit line will connect with the present IRT Flushing Line at about 114th Street, instead of connecting with the Long Island Railroad near the old World's Fair Station, as in Plan B.

The estimated construction cost, exclusive of cars, for Plan C is shown on Table F-2, and totals \$20,830,000 for initial operation.

Summary of Indicative Costs of Facilities

To the estimated initial costs for all three plans, as outlined above, we have added the estimated costs of the cars required at 1955, 1965 and 1975 traffic levels as shown on Table G. Cars for Plans A and B are priced on the basis of 60-foot cars and for Plan C on the basis of 50-foot cars, consistent with the present equipment of the IRT Flushing line.

Table G also shows the estimated costs of future additions, including double tracking the Nassau County portion of the Port Washington Branch (Plan A), and provision of added substation equipment for Plans B and C.

The totals of all estimates for years 1955, 1965 and 1975 are shown on Table G under the caption "Indicative Cost of Facilities" and are summarized below:

		Indicative Costs		
		Line	Cars	Total
1955 -	Plan A	\$11,563,000	\$24,310,000	\$35,873,000
	Plan B	21,145,000	19,305,000	40,450,000
	Plan C	20,830,000	17,750,000	38,580,000
1965 -	Plan A	15,042,000	28,600,000	43,642,000
	Plan B	21,753,000	22,880,000	44,633,000
	Plan C	21,438,000	21,250,000	42,688,000
1975 -	Plan A	15,042,000	32,175,000	47,217,000
	Plan B	21,753,000	24,310,000	46,063,000
	Plan C	21,438,000	23,000,000	44,438,000

The above estimates do not include the costs of the trunk routes to which the proposed extensions would be connected.

In Plans A and B the trunk route is the proposed 76th Street East River Tunnel line connecting with the Sixth Avenue Subway in Manhattan. The cost of this route, of two-track subway construction, would be of the order of \$110,000,000 at 1956 price levels. Also in Plan B, there is no cost included above for the four miles of double-track line of the Long Island Railroad which has been assumed to be jointly operated under the proposed rapid transit plan.

In Plan C the proposed rapid transit extension connects directly with the IRT Flushing line, and no major expenditures on this line would be necessary to accommodate the addition of the proposed extension, excepting at the connection.

Other Alternate Extensions

In discussion of our studies of the proposed rapid transit routes of Plans A, B and C with representatives of the Metropolitan Rapid Transit Commission, we were requested to develop indications of the possible routing of a rapid transit extension on other streets generally paralleling the Horace Harding Expressway.

We made a general field reconnaissance of the area concerned, and selected several alternate routes for the proposed Horace Harding Expressway line. We have not, however, made any studies of construction details or of existing sub-surface conditions. The alternate routes selected would

III. PUBLIC BENEFITS



III. PUBLIC BENEFITS

The potential benefits of the proposed rapid transit lines depend basically upon the time-saving, relative convenience and transportation costs on the proposed lines as compared with existing facilities. The benefits concern principally the present and future residents of northern areas of Queens and Nassau Counties.

They would also concern in a minor but increasing degree the travel created by business or industrial development in and adjacent to the areas served by the proposed rapid transit lines. The Regional Plan Association has estimated that the number of employees in the whole of Queens and Nassau Counties will increase 35 per cent and 61 per cent respectively (a weighted average of 46 per cent) from 1955 to 1975. An undetermined portion of these increases will occur in the areas served by the proposed rapid transit lines. However, the well established practice of use of automobiles by employees of large industrial plants, and the tendency of many to reside within the immediate vicinity of the plant, tends to greatly minimize the relationships between public transportation demands and industrial employees.

The overall indication of public benefits of the proposed rapid transit lines is the relative volume of traffic which would be attracted to them. In developing our passenger

estimates, we have dealt with the total traffic originating in an arbitrarily defined area of northern Queens and Nassau Counties which covers, and to some degree extends beyond, the area of time-saving benefits of any of the plans.

The passenger estimates indicate that initially between 33.6 and 35.6 million annual through passengers would use the proposed rapid transit lines. These estimates range between 17 per cent and 18 per cent of the total through (commuter) traffic now using all transportation means, including automobiles, from the general area. In 1975 it is estimated that these proportions under the respective plans would increase to a range of 45.5 to 51.0 million annual passengers, or 17.6 per cent to 19.8 per cent of the total through traffic.

There would also be a minor volume of local traffic not included above. Although there is a relatively small range in estimated passengers diverted to the proposed lines, the composition of the diversion as to its source varies considerably under Plan A as compared to Plans B and C.

The more specific factors concerned in evaluating the public benefits, including population served, time-saving and relative fares, are discussed as follows.

	Queens			Nassau			Total
(1) In Gross Area Concerned	484	358	842	484	358	842	
(2) Within Time-Saving to Manhattan	253	165	418	317	243	560	(Plan B)
(3) Within 1/2 Mile of Proposed Route	88	34	122	61	-	61	(Plan C)

Distribution of the 1950 population of the general area concerned is shown by spots on Maps 4, 5 and 6. These data were obtained from a general population map prepared by the Regional Plan Association. The northern area of Queens is fairly well developed and the inner northern area of Nassau County has a fairly heavy suburban development, but with much room for further population increase. Considerable space is, however, occupied by large estates particularly in the general vicinity of Port Washington and other Long Island Sound locations.

The estimated population of the northern Queens and Nassau County areas for year 1955, is shown (by traffic sections) on Tables D, D1 and D2. The following tabulation summarizes the general distribution of 1955 population with respect to the proposed rapid transit plans:

Estimated Population 1955 (Thousands)

	Plan A			Plans B & C		
	<u>Queens</u>	<u>Nassau</u>	<u>Total</u>	<u>Queens</u>	<u>Nassau</u>	<u>Total</u>
1) In Gross Area Concerned	484	358	842	484	358	842
2) Within Time-Saving Influence for Riding to Manhattan	253	165	418	317	243	560 (Plan B)
				265	238	503 (Plan C)
3) Within 1/2 Mile of Proposed Route	88	34	122	61	-	61

Population in the gross area considered in the studies totals 842,000 as shown on line (1) above. The extent of this area is shown on Map No. 7. It includes the following traffic sections: Queens 2210 and 2320 (part); Nassau 3211, 3212, 3213, 3221, 3222, 3111 (part) and 3115 (part).

The portion of this total population within the time-saving influence of the proposed rapid transit lines shown on line (2) ranges from 418,000 for Plan A to 560,000 for Plan C. These respective populations are the estimated 1955 totals within the zero time-saving contours shown on Maps Nos. 4, 5 and 6 for the respective plans.

The population served by Plan A is smaller because of the fact that the Port Washington route lies closer to the shore line of Long Island Sound than the Horace Harding Expressway route. This has the effect of reducing the extent of the area served south of the proposed route without adding any comparable area on its northern side.

Comparison of 1955 population located directly along the proposed routes is more favorable to Plan A. The population within 1/2 mile of each route, shown on line (3) of the above tabulation, totals 122,000 for Plan A and 61,000 for Plans B and C. This is largely due to the fact that the proposed route in Plan A extends into Nassau County and includes about 34,000 population in that county directly served by the

line. It is also true, however, that Plan A directly serves 88,000 population within Queens County as compared to 61,000 served by Plans B and C. This is due largely to the fact that the Port Washington Branch of the Long Island Railroad has developed the areas along its route, whereas the area immediately adjacent to the route of the Horace Harding Expressway is not so well developed because of the lack of similar established transportation facilities.

The latter situation will change rapidly with the completion of pending improvements in the Horace Harding Expressway area.

Estimates of potential future growth in population in the general area served by the proposed routes shown on Tables D, D1 and D2 show a greater numerical increase in population in the northern Nassau County areas than in the northern Queens County areas. It appears likely that the population served directly along the route by Plan A will continue to be greater than that directly served by Plans B and C, but that the latter plans, including bus feeders, will continue to serve a greater total population than Plan A. In projecting our population estimates to future years, we assumed that rapid transit service including a bus feeder system would be extended into the general area served by Plans A, B or C. We did not, however, make separate population projections for the individual plans because of the fact

that the areas served are largely coextensive as shown by time-saving contours on Maps Nos. 4, 5 and 6. The relationship between population distribution and the time-saving influence of the proposed routes will be discussed later in this section.

Feeder Lines

Our studies of time-saving benefits and diversion of traffic to the proposed rapid transit lines take into consideration the gathering and distribution of traffic by feeder bus lines serving the northern Queens and Nassau County areas, and interchange with private automobiles. We have not assumed any free-transfer or joint-rate fares between the proposed rapid transit lines and bus routes. We have assumed, however, that reasonable modifications would be made in existing bus routes to provide feeder service to the stations of the proposed rapid transit lines.

Base Fares

We have assumed that the present 15-cent City fare would apply to the proposed rapid transit lines, consistent with the general policy of the City of charging a single fare on its existing lines in Queens County (excepting on the recently acquired Far Rockaway Line).

In Plan A we have assumed that an additional 15-cent fare would be charged for rides crossing City line to and from Nassau County.

Fare collection eastbound would be by means of collecting 15 cents from all passengers leaving Nassau County stations which would be a second fare for through passengers from the City.

Westbound, 30-cent fares would be collected at rapid transit stations in Nassau County and a 15-cent refund made to local passengers at Nassau County exits.

In Plan A, the proposed rapid transit service would supersede the present railroad service on the Port Washington line and the 15-cent and 30-cent fares described above would be charged in lieu of the existing railroad rates.

A general comparison of commuter fares follows:

	Present Total Fare	Proposed R.T. Plans Total Fare
<u>Northern Queens</u>		
Rapid Transit*	15¢ (To Flushing or Jamaica only)	15¢ (To near City Line)
Bus-Rapid Transit	30¢	30¢
LIRR Cash	55¢ to 76¢	15¢ (Plan A
Commutation	49¢ to 57¢	only)
<u>Northern Nassau</u>		
Rapid Transit	-	-
Bus-Rapid Transit	35¢ to 85¢	35¢ to 85¢
LIRR Cash	79¢ to 95¢	30¢ (Plan A
Commutation	58¢ to 64¢	Only)

*Present rapid transit lines extend only as far east as Flushing and Jamaica. Proposed lines extend much further eastward and the proposed 15-cent fare for direct rides in general is comparable with present bus-rapid transit rate of 30 cents.

BASIC TRAVEL TIMEPLAN A

Travel Time - Minutes
 To Midtown To Lower
 Manhattan Manhattan

From R. T. Station at

Nassau Co.

Port Washington

60.5

76.5

Plandome

55.5

71.5

Manhasset

52

68

Great Neck

48

64

Queens Co.

Little Neck

44.5

60.5

Douglaston

42

58

Bayside

39

55

Auburndale

36.5

52.5

Broadway

34

50

Murray Hill

32

48

Flushing

29

45

Notes:

Midtown Manhattan times computed to 34th St. and 6th Ave.

Lower Manhattan times computed to Wall St. via 6th Aven.

Subway with transfers at West 4th St. and at Broadway

Nassau.

Times include allowances for boarding, alighting and transfer.

No stop at Corona Station is included in running times shown.

BASIC TRAVEL TIMESPLANS B AND C

Commuter fares for all stations on the Port Washington Branch of LIRR are shown on Table B. Bus-rapid transit fares from pertinent traffic sections in Nassau County are noted at the bottom of Table A-1.

Under the assumed fare schedule described above there would be a substantial decrease in the number of second fares now collected on City lines in Queens county under all of the proposed plans. There would be very substantial fare savings for passengers diverted from the LIRR to the proposed rapid transit lines. This effect would be maximum under Plan A in which all present LIRR fares would be discontinued.

Basic Travel Time

The estimated travel times to and from Manhattan for each of the proposed rapid transit extensions are based on two-track operation for the entire length of route to Manhattan under Plans A and B. Under Plan C the express running time on the third track of the outer portion of the IRT line has been included in the computations.

The basic estimated travel times to and from Manhattan are shown opposite this page for Plan A and opposite the following page for Plans B and C.

BASIC TRAVEL TIMESPLANS B AND C

From R. T. Station at	Travel Time - Minutes			
	Plan B		Plan C	
	To Midtown Manhattan	To Lower Manhattan	To Midtown Manhattan	To Lower Manhattan
Marathon Parkway	45	61	46.5	57
Douglaston Parkway	43.5	59.5	45	55.5
Springfield Blvd.	41.5	57.5	43	53.5
Oceania Street	39.5	55.5	41	51.5
Francis Lewis Blvd.	38	54	39.5	50
188th Street	36.5	52.5	38	48.5
Utopia Parkway	35	51	36.5	47
Pidgeon Street	33.5	49.5	35	45.5
Kissena Blvd	32	48	33.5	44
Main Street	30.5	46.5	32	42.5
Lawrence Street	29	45	30.5	41

Notes:

Midtown Manhattan times computed to 34th St. and 6th Avenue for Plan B; and to 34th St. and 7th Avenue for Plan C, including transfer to 7th Avenue subway at Times Square.

Lower Manhattan times computed to Wall Street as follows: Plan B, via 6th Avenue subway with transfers at West 4th St. and at Broadway-Nassau.

Plan C, via 7th Avenue Subway.

Estimated Time-Saving

Estimated time-savings for rides to midtown Manhattan are shown separately for each plan by means of contours on Maps Nos. 4, 5 and 6. The contours show the savings in minutes for rides on the proposed rapid transit lines to midtown Manhattan as compared with present time via existing rapid transit lines. In both cases the travel times required to reach the rapid transit stations on bus feeder routes are included. The present running time of the Port Washington Branch of the LIRR is not taken into consideration in these studies. (Time-savings and fare savings compared with LIRR are discussed later.)

A summary of the potential time-savings for rides to midtown and lower Manhattan resulting from the integration of the time-saving contours, is shown for all plans on Table A. The data are tabulated by traffic sections, subtotaled for Queens and Nassau Counties, and totaled for the entire area concerned. The table shows the population of the area and the estimated weekday through passengers originating in the area by bus and automobile, which includes passengers now interchanging to rapid transit lines. It does not include LIRR passengers. In columns 4 to 12 inclusive, the ranges in time-saving and average time-savings are shown for the several plans. The time-savings are shown on two bases,

(1) taking into consideration the present distribution of population and (2) on an area basis which reflects a hypothetical ultimate even distribution of population.

The resulting average savings applicable to the area considered are as follows:

	<u>Average Time-Saving - Minutes</u>		
	<u>Queens</u>	<u>Nassau</u>	<u>Total Area</u>
<u>Present</u>			
Plan A	3.1	14.6	6.0
Plan B	4.3	7.0	5.4
Plan C	3.8	7.4	5.3
<u>Ultimate</u>			
Plan A	4.5	12.5	10.7
Plan B	5.8	9.6	8.9
Plan C	5.4	9.3	8.6

The averages for Plans B and C are very close. Average savings for Plan A are slightly lower in Queens than for the other two plans but are larger in Nassau County and in the grand average for the total area. The ultimate grand averages range between 8.6 minutes and 10.7 minutes for all plans.

A further detailed summarization of time-saving benefits, and a comparison of fares as well, is shown on Table A-1. This tabulation shows the time-savings and fare savings for each rapid transit plan by traffic sections. Savings excluding comparison with LIRR are shown at the top of the table which is followed by savings compared with

present LIRR travel time and fares. The combinations of these two groups are shown at the bottom of the table under the headings "Time-Savings - All Sections" and "Fare Savings - All Sections". Times on the Port Washington Branch are shown by station. In these latter groups the minutes and cents saved are shown with the approximate total through traffic originating within the influence of the respective savings. All of the comparisons are shown separately for rides to midtown and lower Manhattan. Further summarization of the time-savings indicate that the percentages of the total passengers now originating within the time-saving influence are as follows:

<u>Potential Time-Savings</u>	<u>For Riding to Midtown Manhattan (Approx. 152,000 Passengers Considered)</u>		
	<u>Plan A</u>	<u>Plan B</u>	<u>Plan C</u>
0 to 15 min	75.0%	80.2%	81.3%
Over 15 min	<u>12.9</u>	<u>10.0</u>	<u>8.9</u>
	<u>87.9%</u>	<u>90.2%</u>	<u>90.2%</u>

	<u>For Riding to Lower Manhattan (Approx. 43,600 Passengers Considered)</u>		
0 to 15 min	63.4%	65.8%	79.7%
Over 15 min	<u>9.4</u>	<u>6.7</u>	<u>8.9</u>
	<u>72.8%</u>	<u>72.5%</u>	<u>88.6%</u>

The numbers of passengers covered in this study include automobile, LIRR and bus passengers (prorated) originating in the Queens County area. In Nassau County the same transfer conditions, availability of seats or vehicle loading

determine Comparisons of travel times under Plan A with the present travel times on the Port Washington Branch are shown by stations on Table B. These studies show that there would be losses of between 6-1/2 and 10 minutes for passengers now using the railroad to midtown Manhattan, and about 2-1/2 minutes greater losses for rides to Lower Manhattan. Under this plan the railroad service would be discontinued, and the time losses would affect all passengers now using the railroad service.

whereas In Plans B and C the average time comparisons with LIRR service (shown on Table A-1) reflect even greater average losses in time from the traffic sections within the general area of influence of the rapid transit lines, particularly in Nassau County. These losses are computed by comparing the times via either facility from the respective areas, including the time to reach the proposed rapid transit line by bus from the Nassau County area.

Convenience

In addition to the factors of time-saving and fare differentials, the matter of relative convenience of the respective facilities is of great importance in determining the relative public benefits. Directness of ride or improved transfer conditions, availability of seats or vehicle loading

plans would be the extension
to the outer areas affected, resulting
direct service to Manhattan and reduction in the number
transfer rides.

Under Plans B and C the proposed rapid transit
routes would be in addition to the present railroad service,
whereas under Plan A the new rapid transit service would
supersede the railroad service. The latter situation would
result in lower fares and increased frequency of service on
the line but, in general, the service would be slower than
the present railroad service to Manhattan, due to the in-
creased length of route and loss of railroad express service.
The proposed service on Plan A would accommodate a much larger
number of people than the present railroad service, and would
be of definite benefit to more than half of the total passen-
gers carried. However, for those who desire to continue as
railroad commuters from the viewpoint of their own convenience
or from the viewpoint of restricting the development of their
suburban areas, the substitution of rapid transit service
would be considered a serious disadvantage.

CHARTS

ice on the Port Washington Branch would decrease the number of trains operated to and from Pennsylvania Station in New York. On the basis of present schedules the number of trains operated in the AM and PM peak hours are as follows:

	<u>Number of Trains Per Hour</u>	
	<u>All Branches LIRR</u>	<u>Port Washington Branch</u>
AM Peak Hour (Arriving)	32	7
PM Peak Hour (Leaving)	30	8

Discontinuance of the Port Washington service would therefore make additional terminal capacity available for 7 or 8 trains on other branches in the maximum hour if such additional service becomes necessary. On the basis of 10-car trains, this additional terminal capacity would provide for 8,400 to 9,600 additional seated passengers per hour.

IV. ESTIMATED PASSENGERS AND REVENUES

IV.

ESTIMATED PASSENGERS



ESTIMATED SOURCES OF THROUGH PASSENGERSIV. ESTIMATED PASSENGERS AND REVENUES

The basic data used for our estimates of potential passengers for the proposed rapid transit lines consisted of a combination of recorded total passengers for existing transit facilities and data, particularly for Nassau County traffic, from our 1956 Origin-Destination Survey (Report No. 5849-A). We did not have origin-destination survey data for the Queens area excepting with respect to the Long Island Railroad. In developing the total traffic volumes from which our diversion estimates were made it was necessary to resort to estimates to a considerable degree. The principal available basic data included the following:

Passengers Boarding Existing Rapid Transit Lines
by Stations

Passengers Carried by City-operated Bus Lines in Queens

Passengers Originating at LIRR Stations on the
Port Washington Branch

Passengers Carried by Nassau County Bus Lines

Origin-Destination of Auto Passengers Originating
in Nassau County

Origin and Destination of LIRR passengers Originating
in Nassau County and to Some Extent in Outer Queens

*Adjusted, see Table D

ESTIMATED SOURCES OF THROUGH PASSENGERS
FOR PROPOSED RAPID TRANSIT PLANS

AVERAGE WEEKDAY, ONE WAY, YEAR 1955

<u>Area of Origin and Class</u>	<u>Total Weekday 1955- One Way</u>	<u>Estimated Rapid Transit Passengers (excl. Local)</u>		
		<u>Plan A</u>	<u>Plan B</u>	<u>Plan C</u>
LIRR - Queens County*	4,327	4,327	200	200
Nassau County*	<u>24,361</u>	<u>11,632</u>	<u>3,158</u>	<u>3,158</u>
Total LIRR	<u>28,688</u>	<u>15,959</u>	<u>3,358</u>	<u>3,358</u>
Auto Passengers - Queens County	72,600	6,000	8,400	8,400
Nassau County	<u>97,356</u>	<u>5,817</u>	<u>5,199</u>	<u>4,008</u>
Total Auto Passengers	<u>169,956</u>	<u>11,817</u>	<u>13,599</u>	<u>12,408</u>
Bus Passengers - Queens County	118,300	25,896	39,483	39,483
Nassau County	<u>1,000</u>	<u>500</u>	<u>1,000</u>	<u>1,000</u>
Total Bus Passengers	<u>119,300</u>	<u>26,396</u>	<u>40,483</u>	<u>40,483</u>
Grand Total	<u>317,944</u>	<u>54,172</u>	<u>57,440</u>	<u>56,249</u>
Per Cent of Total Passengers	100.0	17.0	18.1	17.7

RECAPITULATION AS TO DIVERSION
FROM IRT FLUSHING LINE, IND JAMAICA LINE
AND LIRR (PORT WASHINGTON BRANCH)

	<u>Plan A</u>	<u>Plan B</u>	<u>Plan C</u>
IRT-Flushing Line (via Bus)	22,500	21,000	21,000
(via Auto)	3,500	3,000	3,000
IND-Jamaica Line (via Bus)	3,896	19,483	19,483
(via Auto)	<u>500</u>	<u>500</u>	<u>500</u>
Sub-total	<u>30,396</u>	<u>43,983</u>	<u>43,983</u>
LIRR - Port Washington Branch	<u>15,959</u>	<u>3,358</u>	<u>3,358</u>
Sub-total	<u>46,355</u>	<u>47,341</u>	<u>47,341</u>
Through Auto Traffic	<u>7,817</u>	<u>10,099</u>	<u>8,908</u>
Grand Total	<u>54,172</u>	<u>57,440</u>	<u>56,249</u>
	=====	=====	=====

*Adjusted, see Table D

Weekday Passengers - 1955

The basic total weekday passengers related to the proposed rapid transit lines for the purpose of preparing diversion estimates was about 318,000 passengers one way on an average weekday in 1955. This excludes local traffic. It is an approximate determination.

Our estimates of passenger traffic for the proposed rapid transit lines are shown on Tables C, C-1 and C-2 for Plans A, B and C respectively. The estimates were developed in detail from the traffic sources shown. A summarization of the estimates for the three rapid transit plans is shown on the opposite page.

The tabulation shows that the estimated traffic diverted to the proposed rapid transit lines ranges between about 54,200 and 57,400 weekday passengers, or between 17.0 and 18.1 per cent of the total through traffic originating in the general tributary area. In Plan A the diversion is estimated at about 16,000 passengers from the LIRR Port Washington Branch, on account of the substitution of rapid transit service, and about 12,000 and 26,000 respectively from automobile and bus passengers. In Plans B and C the diversion from the Port Washington Branch of the LIRR is estimated at about 3,400 passengers, due principally to the greatly reduced rates of fare which would be available on the proposed rapid transit lines as compared with railroad rates. Under these two plans the diversion from automobile

respectively and the diversion from bus passengers at about 40,500.

The recapitulation in the lower portion of the tabulation shows the estimated diversion of passengers from the IRT-Flushing Line and the IND-Jamaica Line, now reaching those lines by auto or bus. It also shows the diversion from the LIRR Port Washington Branch. The subtotals of the estimated diversion from the two existing rapid transit lines and the Port Washington Branch range between about 46,400 and 47,300 passengers. The remainder of the estimated diversion is from through automobile traffic and ranges between about 7,800 and 10,100 passengers.

Diversion from the two affected existing rapid transit lines ranges between about 30,400 under Plan A to about 44,000 under Plans B and C. These passengers reflect losses in traffic and revenues on the existing rapid lines which, in addition to losses in revenues on City bus lines, have been taken into consideration in estimating the effect the revenues of the New York City transit system in Division V.

Peak Passengers

The following tabulation shows the estimated diversion in the AM peak two-hour period related to the weekday diversion:

Weekday, 24 hours
7-9 AM, 2 hours
Per cent

19.4

Bus

Weekday, 24 hours
7-9 AM, 2 hours
Per cent

26,396
7,600
28.8

40,483
11,655
28.8

40,483
11,655
28.8

Total

Weekday, 24 hours
7-9 AM, 2 hours
Per cent

54,172
19,872
36.7

57,440
16,394
28.6

56,249
16,163
28.8

Annual Passengers
Years 1955, 1965 and 1975

Our estimates of annual rapid transit passengers riding in both directions of travel, are shown on Tables D, D-1 and D-2 for Plans A, B and C respectively. At the top of each of these tables our estimates and projections of population distribution and total passengers are shown by traffic sections within the affected area. The population estimates shown for each traffic section are all based on the total populations of Queens and Nassau County as developed by the Regional Plan Association, distributed on the basis of other detailed data and estimates.

The estimates of annual passengers in both directions of travel for the respective rapid transit plans are shown in detail in the lower portions of the tables referred to above. With respect to Plan A, projections of rapid transit traffic are based on the assumed diversion to the rapid transit lines of 25 per cent of the increase in total traffic to 1965, and 20 per cent of the increase from 1965 to 1975. An exception to this is made with respect to traffic section 3222, where 10 per cent of the total traffic has been used for both decades. Under Plans B and C, the estimated diversion of the total traffic to 1965 is 30 per cent for Queens County and 25 per cent for Nassau County. For the period 1965 to 1975 the percentages are 25 per cent and 20 per cent respectively.

The basic estimates for 1955 were obtained from our detailed estimates of weekday passengers shown on Tables C, C-1 and C-2. Conversion from weekday one-way passengers to annual two-way passengers is shown on columns (13) and (14) of Tables D, D-1 and D-2.

Annual Passengers and Passenger Revenues

None of the previous tables includes local riding on the rapid transit lines. To reflect these passengers, we have estimated that local riding, expressed in per cent of through riding, would amount to 12 per cent for Plan A and 6 per cent for Plans B and C.

the New York City rapid transit system. Double fares (29.54¢) have been applied to all passengers riding through from Nassau County in Plan A. In Plans B and C there is no through riding from Nassau County and therefore no double fares, as both lines terminate at Marathon Parkway, Queens.

The estimates of annual passengers and passenger revenues, for the three rapid transit plans in the years 1955, 1965 and 1975, are summarized as follows:

<u>Annual Revenue Passengers</u>	<u>All Figures in Thousands</u>		
	<u>Year 1955</u>	<u>Year 1965</u>	<u>Year 1975</u>
Plan A	37,600	47,600	51,000
Plan B	37,700	50,000	54,100
Plan C	37,000	49,200	53,300
 <u>Annual Passenger Revenue</u>			
Plan A	\$ 7,207	\$ 9,379	\$10,177
Plan B	5,568	7,385	7,991
Plan C	5,465	7,267	7,872

V. ESTIMATED OPERATING RESULTS

SUMMARY AND CONCLUSIONS
PASSENGER TRAFFIC

V.



Presented in this section are our estimates of the financial operating results of the proposed rapid transit extensions. The estimates pertain to the passengers, revenues, operations and costs of the extensions, excluding operations related specifically to the requirements of the trunk routes. The estimates do, however, include the costs of additional cars and of car-mileage necessary to provide the required added service to Manhattan (34th Street and Sixth Avenue for Plans A and B and Times Square for Plan C).

The variations in the characteristics of the trunk routes have in each case an important bearing upon the feasibility of the proposed extensions, financially and otherwise. The estimated effects of the three plans on the passengers and revenues of existing transit facilities have also been given consideration at the end of this section.

General Operating Conditions

Plans A and B, connecting with the Sixth Avenue Subway via the projected 76th Street Tunnel route, would be equipped with 60-ft cars of 10-ft width. The schedules of the proposed rapid transit extensions, and of additional service operated on the 76th Street Tunnel route, would combine with the present Sixth Avenue service. The effectuation of either of these plans would depend primarily upon the construction of the 76th Street Tunnel Route at the cost in

cars. These construction costs, or any allowance for annual carrying charges thereon, are not included in the estimates of results of operation of the rapid transit extensions as shown in this section.

In Plan A we have recognized in our estimates the indicative costs of acquiring the Port Washington Branch of the Long Island Railroad. With respect to ownership and operation under Plan A, it should be noted that the fact that the route extends into Nassau County is likely to involve a special legal problem as to control by the City of New York.

Plan B would utilize, jointly with the railroad service, about four miles of the Port Washington Branch. We believe that joint schedules could be satisfactorily arranged in all years, but that stops at Corona and Elmhurst Stations on the jointly used stretch should be eliminated in order to obtain the required train capacity free of delays.

These two stations are very lightly used. Traffic checks made by the LIRR in 1954 showed 4 passengers boarding a single inbound train which stopped at Corona Station and a total of 115 passengers boarding 7 of 15 trains stopping at Elmhurst Station. No passengers boarded the remaining 8 trains. At present, one train per weekday is scheduled to stop at Corona Station and 13 trains at Elmhurst Station. The 104th and 111th Streets Stations of the IRT Flushing Line are each

from the joint use of this section of the LIRR property.

estimated operating expenses do, however, include the

of operation and maintenance on this stretch. An arrange-

for such joint use would, in our opinion, involve

consideration of the diversion of passengers and revenue

on the Port Washington Branch, and the effect on the net

income of the LIRR in addition to the primary consideration

rental for the joint use rights. about 30 per cent above

present Plan C would connect directly with the IRT-Flushing

and is the only one of the three plans which does not

directly involve the Long Island Railroad. It would, however,

divert an appreciable volume of traffic from the Port Washing-

ton branch and correspondingly affect the revenues and operations

of that line. Because of the absence of joint use complications,

this would be a purely competitive situation under this Plan.

On account of its connection with the IRT-Flushing

line, Plan C would be equipped with the smaller cars (approx-

imately 50 ft long by 8-1/2 ft wide) for which the line is

designed. Furthermore, the number of trains presently operated

is the ultimate maximum number for

which capacity would be available. Present train lengths are limited to nine cars and such trains are operated throughout most of the 24-hour weekday period. By lengthening the station platforms on the line, it is possible to increase the train lengths to eleven cars which would increase the total carrying capacity by 22 per cent including the peak hours. A recent traffic check by the Transit Authority at the maximum load point on the line shows a total passenger load of 40,000 passengers in the peak hours in the heavy direction of travel, an average loading of about 134 passengers per car. We believe that the ultimate capacity of the line, including the operation of eleven-car trains, is at least 52,000 passengers per hour or about 30 per cent above the present load. Our estimates for Plan C show a net added passenger load at the maximum load point on the IRT line of about 10,000 passengers in the maximum hour in the year 1975.

We believe that the IRT line has ample capacity to accommodate the traffic of the Plan C extension until 1975 or later. The cost of lengthening stations on the IRT line has not been included in our estimate for Plan C but the cost of additional cars to serve the extension, including cars required to carry the added passenger loads to Manhattan, is included.

Income Accounts and Operating Data

Table G summarizes the estimated income accounts for the three proposed rapid transit plans for years 1955, 1965 and 1975. This table also shows estimates of the significant operating statistics underlying the estimated income accounts. These estimates and data are discussed below.

Passengers and Revenues

Estimates of passengers and passenger revenues for the three plans are shown on Table G; the passenger revenues shown include the fares of all passengers who would use the proposed extensions regardless of where the fare is paid, i.e. on the extension or on the connected trunk line. An estimate of "other revenue" is added to obtain the total estimated revenues shown at the top of the table. No allowance has been made in this section for the effect on the revenues of existing facilities.

Car Miles and Operating Expenses

The estimates of annual car miles required for the operation of the various rapid transit plans are shown in the lower portion of Table G. These estimates are based upon detailed studies of the service required during the weekday periods, and calculation of the resulting car mileage. The car miles were then projected to an annual basis, reflecting allowances for reduced Saturday, Sunday and holiday service.

In computing the scheduled weekday service, for Plans A and B, the passenger capacity of 60-ft cars has been taken at 220 passengers with an average loading of 150 passengers per car assumed at Woodside Station, and 200 per car for ultimate loading at the maximum load point on the proposed 76th Street East River tunnel line. For Plan C, 50-ft cars have been assumed in conformity with the operating conditions on the IRT-Flushing line. The average loading of these cars has been considered to be 120 passengers for passengers using the proposed extension, and 150 per car for ultimate loading at the maximum load point on the IRT-Flushing line.

In addition to the operating costs on the proposed rapid transit extensions, the estimates include the costs of additional cars and car-mileage required to provide the added service required to Manhattan (34th Street and 6th Avenue for Plans A and B, and Times Square for Plan C). Costs of Maintenance of Way and Structures were estimated on the basis of miles of track included in the proposed extensions.

In Plan A, the estimated costs of Maintenance of Way and Structures covers the Port Washington Branch, from the point of connection with the proposed 76th Street tunnel rapid transit line. In Plan B the estimated maintenance costs cover the line from the same point of connection, which includes about 4 miles of double-track line on the portion of the Port Washington Branch utilized in the plan. In

Plan C the estimated costs cover the maintenance of the proposed extension from its connection with the IRT Rapid Transit Line at about 114th Street. Details of the estimates of operating cost for all plans are shown on Table G.

Unit operating costs, shown on Table G, are based upon New York City Transit Authority average costs for rapid transit lines for the year ended June 30, 1955, modified to reflect back pay and probable lower maintenance of way costs due to differences in type of structure. We have not attempted to make any distinction between the unit costs of operating 50-ft and 60-ft cars but have applied the averages above mentioned to both types.

Estimated operating expenses shown on Table G, exclude taxes and depreciation charges. Taxes have been excluded on the basis of assumed public operation. With respect to depreciation and interest charges, an allowance of 6 per cent has been made on the overall physical costs or value of the respective rapid transit lines to indicate the general magnitude of the inclusion of such charges.

Headways and Cars Required

Our estimates of the total volumes of rapid transit traffic and the resultant hourly passenger loads, based upon our 1956 traffic survey, show that the service required under the loading standards assumed will not justify the operation of short headways, such as apply on trunk rapid transit lines

and also

Under Plan A, initial service will require
track east of Manhasset Station in the single track section of
the line between Great Neck and Port Washington. Estimated
hourly passenger loads and resultant headways by the year
1965, however, indicate that this section should then be
double tracked. Our estimates of cars required under each
of the proposed rapid transit plans include the number suffi-
cient to maintain the required service, including the additional
cars required to operate the service to 34th Street and Sixth
Avenue in Plans A and B, or to Times Square in Plan C, plus an
appropriate number of spares.

Comparative Results of Operation

The estimated operating results of the respective
rapid transit plans, as indicated by the Net Income before
interest and depreciation shown on Table G, are as follows:

Note: The numbers shown under the heading "Order"
indicate the order of preference in the respective
years on a net income basis.

Net Income Before Interest and Depreciation* = Deficit

	<u>Year 1955</u>	<u>Order</u>	<u>Year 1965</u>	<u>Order</u>	<u>Year 1975</u>	<u>Order</u>
Plan A	\$ 155,000	1	\$1,116,000	1	\$1,519,000	1
Plan B	34,000*	2	1,098,000	2	1,488,000	2
Plan C	330,000*	3	590,000	3	903,000	3

Note: The numbers shown under the heading "Order" indicate the order of preference in the respective years on a net income basis.

On the basis of the above measure, Plan A is indicated as somewhat more attractive than Plan B, but the differences in net income are not significant amounts. The net incomes shown for Plan C are, however, considerably lower. After the addition of 6 per cent for depreciation and interest, the net incomes under the three plans, as set forth on Table G, are as follows:

Net Income after Allowance of
6 Per Cent for Interest and Depreciation

* = Deficit

	<u>Year 1955</u>	<u>Order</u>	<u>Year 1965</u>	<u>Order</u>	<u>Year 1975</u>	<u>Order</u>
Plan A	\$1,997,000*	1	\$1,503,000*	1	\$1,314,000*	2
Plan B	2,461,000*	2	1,580,000*	2	1,276,000*	1
Plan C	2,645,000*	3	1,971,000*	3	1,763,000*	3

Note: The numbers shown under the heading "Order" indicate the order of preference in the respective years on a net income basis.

opinion as the results for Plan C. Therefore, for Plan A would be the most favorable in all years.

Net Financial Results Considering
Effects on Existing Facilities

The foregoing studies give no consideration to the effects of the proposed rapid transit plans on the financial aspects of the existing transit facilities. The major portion of the passengers estimated for the proposed rapid transit plans in the year 1955 would be diverted from existing facilities. Such diversions would concern principally the City-owned IRT-Flushing lines and the Port Washington Branch of the Long Island Railroad. There would also be a net diversion of passengers using the City's Queens bus system due to the substitution of the direct rapid transit routes into territory now requiring bus transfers to reach the existing rapid transit lines. The total diversions would include a much larger proportion of LIRR traffic under Plan A than under Plans B and C.

ESTIMATED GROSS REVENUES TO CITY OF NEW YORK FINANCES

PLANS A, B AND C IN YEARS 1952, 1955 AND 1975

Effects on the passenger revenues of the existing facilities would include some actual decreases in present revenues due to lower fare rates. With respect to City-owned lines some passengers who now pay 30 cents for a bus-rapid transit ride would become direct passengers on the proposed extensions at a 15-cent fare. All passengers diverted from the LIRR would ride on the proposed rapid transit lines at considerably lower rates.

We have made approximate estimates of the overall effects of the proposed plans on the passenger revenues of the City's lines and the LIRR. For the year 1955 these estimates are as follows:

Approximate Decrease in Annual Passenger Revenue
Due to Diversion and Lower Rates of Fare

	Long Island Railroad	New York City RT and Bus Lines	Total
Plan A	\$4,145,000	\$2,784,000	\$6,929,000
Plan B	872,000	4,028,000	4,900,000
Plan C	872,000	4,028,000	4,900,000

The net financial effects of the diversions on the existing facilities of the New York City transit lines would include consideration of possible savings in operating expenses due to the diversions (including credit for duplications of expenses for car miles operated to Manhattan covered in our estimates). If it be assumed that operating economies and credits would offset about 3/4 of the revenue losses, the

ESTIMATED GROSS DEFICITS TO CITY OF NEW YORK FINANCES

PLANS A, B AND C IN YEARS 1955, 1965 AND 1975

	Deficits (Thousands)		
	Years		
	1955	1965	1975
<u>Plan A</u>			
Deficit on Proposed Route	\$1,997	\$1,503	\$1,314
Decrease on Other City Facilities	700	890	950
Sub-total	2,697	2,393	2,264
Loss in New York City Taxes*	165	365	365
Total	2,862	2,758	2,629
<u>Plan B**</u>			
Deficit on Proposed Route	2,461	1,580	1,216
Decrease on Other City Facilities	1,000	1,330	1,440
Total	3,461	2,910	2,656
<u>Plan C</u>			
Deficit on Proposed Route	2,645	1,971	1,763
Decrease on Other City Facilities	1,000	1,330	1,440
Total	3,645	3,301	3,203

*New York City taxes on real estate and special franchises, as approximately allocated to the Port Washington Branch of the LIRR, amount to about \$364,000 per annum. Under existing legislation, only about \$165,000 per year is collectible for a period of nine years from August 12, 1954. The above tabulation reflects the loss by the City of taxes due to acquisition by the City of the Port Washington Branch. Similar Nassau County taxes totaling about \$112,000, of which about \$33,000 is now payable, are not included above.

**Figures for Plan B exclude consideration of rental for joint use of a portion of the LIRR Port Washington Branch, negotiation of which would involve consideration of the fact that there would be a loss of revenue from LIRR of about \$872,000 subject to some offsetting decrease in operating expenses.

decrease in net income of the City's existing lines under the proposed rapid transit plans would be approximately as follows:

Plan A	\$ 700,000
Plan B	1,000,000
Plan C	1,000,000

If these approximate net effects on other City-owned facilities are projected to future years in proportion to the total passengers estimated for the proposed plans, and are added to the estimated operating deficits (after interest and depreciation charges), the gross deficits for the respective proposed plans would be as shown on the opposite page.

Our general conclusions are that Plan A would be somewhat less burdensome to the finances of the City of New York. After allowing for an undetermined annual charge in Plan B for joint use privileges with LIRR, the overall financial results of Plan B would, we believe, be in the same general field as the financial results of Plan C.

Physical and Other Features Controlling Feasibility of the Proposed Plans

As previously stated, the studies for Plans B and C were continued to conclusion regardless of the fact that work was begun on the Horace Harding Expressway since the conception of the rapid transit study plans. In our opinion, neither Plan B nor Plan C are practicable because they would require complete revision of the Expressway plans and the economic waste of the substantial construction work completed on that project.

Plan A (and also Plan B) depends upon the construction of the proposed 76th Street East River Tunnel route at an indicated cost, excluding cars, of about \$110,000,000.

Plan A, therefore, may be considered as a practicable adjunct to this trunk line if and when authorized for construction.

The extension of the IRT-Flushing Line on streets other than the Horace Harding Expressway may have a more immediate potentiality of actual accomplishment than Plan A, because of independence of such an extension from other projects.

Freight Service

In connection with Plans A and B, the practicability of continuing the operation of freight service on the Port Washington Branch must be considered. The freight service now operated consists of one train per day six days per week on the section of the Port Washington Branch west of the railroad yards near Corona Station, and one train three days per week on the section of the line east of this point to Port Washington. Discussion with LIRR representatives indicates it would be entirely practicable to continue the present operations within a thirty-minute interval between rapid transit trains. The freight service would, therefore, have to be confined to late night periods when provision could be made for it in the schedules. We are informed that the volume of the present freight business on

the Port Washington Branch is about 7,000 cars per year of which about 1,000 cars are east of the Corona yard. Annual total freight revenues, including demurrage charges, approach \$550,000.

General Reconnaissance of Other Possible Extensions

At the request of representatives of the Metropolitan Rapid Transit Commission, we made a general field reconnaissance of possibilities for other rapid transit extensions on streets generally paralleling the Horace Harding Expressway. Resulting from this study, we projected three tentative routes, shown as 1, 2 and 3 on Map No. 8, as follows:

Route Connecting with the IRT-Flushing Line at Main Street, Flushing

- (1) Via Roosevelt Avenue, Parsons Boulevard, 46th Avenue, Hollis Court Boulevard and 58th Avenue, to Springfield Boulevard (approx. 4.3 miles).

Route Connecting with the IRT-Flushing Line at 114th Street, or with LIRR Near Old World's Fair Station

- (2) Via Flushing Meadow Park, North Hempstead Turnpike and 58th Avenue, to Springfield Boulevard (approx. 5.0 miles).
- (3) Via Flushing Meadow Park, North Hempstead Turnpike, Kissena Boulevard, Jewell Avenue and 73rd Avenue, to Springfield Boulevard (approx. 6.00 miles).

In accordance with the modern policies of the City, it is assumed that such an extension would be principally of subway construction.

Route No. 1 is a simple extension of the IRT-Flushing Line from its present Main Street terminus and has the operating advantage that it avoids splitting the service into two branches and would thus afford greater flexibility and probable operating economy in the scheduling of the required service. The route would serve the area immediately east of Flushing, which in general is well developed and is served by the Port Washington Branch of the LIRR and bus lines operating to Flushing. East of Hollis Court Boulevard the route would parallel the Horace Harding Expressway, using 58th Avenue one block north.

Route No. 2 runs north of, and generally parallel to, the Horace Harding Expressway route on North Hempstead Turnpike and 58th Avenue. In our opinion it is about the nearest practicable substitute for a line on the Horace Harding Expressway as considered herein under Plans B and C. It would be adaptable to connection with the Port Washington Branch of the LIRR or the IRT-Flushing Line in the Flushing Meadow Park area as in Plans B and C respectively.

Route No. 3 runs south of, and generally parallel to, the Horace Harding Expressway route on Jewel Avenue and 73rd Avenue east of Kissena Boulevard. Due to the irregularity

of the street pattern and existing physical developments in the area immediately south of the Expressway, we believe that this is about the closest practicable route paralleling the Expressway to the south. The distance south of the Expressway ranges between 0.5 and 0.6 miles. The more southerly location would extend the influence of this route into the area now served by bus lines on Union Turnpike and correspondingly lessen its influence in the more northerly areas served by Routes 1 and 2. The same alternate possibilities of connection to LIRR or the IRT-Flushing Line would be adaptable to Route No. 3 as in the case of Route No. 2, since the portion of these routes west of Kissena Boulevard is identical. The indirectness of routing of Route No. 3 is a very substantial disadvantage which would be directly reflected in its time-saving benefits. The area served by the route could be served more logically by connection to facilities further south than to those serving the Flushing area.

All three routes have been shown terminating at Springfield Boulevard. Extension of any of the routes further eastward would involve construction through large park and institutional areas on routes independent of existing through highways which are very scarce in the immediate vicinity of the eastern terminals shown for the projected routes.

On the basis of an approximate construction cost of \$15,000,000 per mile for two track subway, the cost of the three study routes, excluding cars, would be approximately as follows:

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All three routes have been shown terminating at Springfield Boulevard. Extension of any of the routes further eastward would involve construction through large park and institutional areas on routes independent of existing through highways which are very scarce in the immediate vicinity of the eastern terminals shown for the projected routes.

On the basis of an approximate construction cost of \$15,000,000 per mile for two track subway, the cost of the three study routes, excluding cars, would be approximately as follows:

APPROXIMATE INDICATIONS OF GENERAL LEVEL OF OPERATING RESULTS OF
 ALTERNATE RAPID TRANSIT ROUTES NOS. 1, 2 AND 3
 CONNECTED WITH IRT-FLUSHING LINE COMPARED WITH PLAN C

No detailed studies have been made for these routes. For this purpose the passengers and revenues estimated for Plan C have been utilized but detailed studies would show variations which could be substantial.

	Estimates for Plan C (Table G)	Approximate Indications for Alternate Routes (connected with IRT-Flushing Line)		
		Route 1	Route 2	Route 3
<u>Year 1955</u>				
Total Revenue	\$ 5,575,000	\$ 5,575,000	\$ 5,575,000	\$ 5,575,000
Operating Expenses	<u>5,905,000</u>	<u>4,912,000</u>	<u>5,183,000</u>	<u>5,614,000</u>
Operating Income*	(330,000)	663,000	392,000	(39,000)
Allowance for Interest and Depreciation	<u>2,315,000</u>	<u>4,755,000</u>	<u>5,430,000</u>	<u>6,398,000</u>
Net Income*	(2,645,000)	(4,092,000)	(5,038,000)	(6,437,000)
Passengers	37,000,000	37,000,000	37,000,000	37,000,000
Car Miles	9,867,000	8,190,000	8,584,000	9,226,000
Miles of Track	14.0	8.6	10.0	12.0
Cars Required	142	118	124	133
Indicative Cost of Facilities				
Road & Equipment	20,830,000	64,500,000	75,000,000	90,000,000
Cars	<u>17,750,000</u>	<u>14,750,000</u>	<u>15,500,000</u>	<u>16,625,000</u>
Total	<u>\$ 38,580,000</u>	<u>\$ 79,250,000</u>	<u>\$ 90,500,000</u>	<u>\$106,625,000</u>
<u>Year 1975</u>				
Total Revenue	\$ 8,027,000	\$ 8,027,000	\$ 8,027,000	\$ 8,027,000
Operating Expenses	<u>7,124,000</u>	<u>5,924,000</u>	<u>6,243,000</u>	<u>6,754,000</u>
Operating Income*	903,000	2,103,000	1,784,000	1,273,000
Allowance for Interest and Depreciation	<u>2,666,000</u>	<u>5,054,000</u>	<u>5,736,000</u>	<u>6,726,000</u>
Net Income*	(1,763,000)	(2,951,000)	(3,952,000)	(5,453,000)
Passengers	53,300,000	53,300,000	53,300,000	53,300,000
Car Miles	12,032,000	9,987,000	10,468,000	11,250,000
Miles of Track	14.0	8.6	10.0	12.0
Cars Required	184	153	160	172
Indicative Cost of Facilities				
Road & Equipment	21,438,000	65,108,000	75,608,000	90,608,000
Cars	<u>23,000,000</u>	<u>19,125,000</u>	<u>20,000,000</u>	<u>21,500,000</u>
Total	<u>\$ 44,438,000</u>	<u>\$ 84,233,000</u>	<u>\$ 95,608,000</u>	<u>\$112,108,000</u>

*Figures in parentheses are deficits.

<u>Route</u>	<u>Miles</u>	<u>Approximate Construction Cost</u>
No. 1	4.3	\$64,500,000
No. 2	5.0	75,000,000
No. 3	6.0	90,000,000

These estimates indicate additional costs for construction of \$43,000,000 to \$69,000,000 over the approximately \$21,000,000 construction cost estimated in detail for the Horace Harding Expressway rapid transit line in Plans B and C. Additional annual charges for interest and depreciation at a 6 per cent rate would amount to between \$2,580,000 and \$4,140,000, excluding consideration of variations in the cost of cars required.

We have made no estimates of the operating results of the tentative subway routes but it appears quite obvious that the resulting deficits for these plans would be considerably greater than for Plans B and C, due to the heavy additional construction costs involved.

For the purpose of developing indications of the general level of the probable operating results of the three alternate subway routes we have prepared the approximate estimates shown in the tabulation opposite this page. Since no studies of potential passenger traffic were made for these routes, we have used for this approximate purpose the traffic and revenue estimates for Plan C in the estimates for all routes. Actually we would expect substantial variations from this assumption with respect to Routes Nos. 1 and 3.

With respect to Route No. 2 we believe the traffic and revenues would be close to those estimated for Plan C with a minor decrease due to the shorter route.

In preparing the approximate estimates of car-mileage operating expenses, and cars required, we have given effect to the shorter Routes Nos. 1, 2 and 3, all of which are terminated at Springfield Boulevard as compared with the termination of Plan C at Marathon Parkway. The construction cost estimates were made on the approximate basis of \$15,000,000 per mile of subway plus cars at \$125,000 each. All of the estimates are made on the basis of connection of the alternate routes with the IRT-Flushing Line. The increased cost of maintenance of subway line as compared to surface railway line was also reflected in the estimates.

The approximate operating results shown indicate that in general the operating income of the alternate routes, subject to variations in revenue not taken into consideration, would be more favorable than the operating income of Plan C. After allowing for interest and depreciation, the deficits would be substantially greater for the alternate routes than for Plan C. The results indicated for Route No. 1 are closest to those for Plan C. The results shown for Route No. 2, in our own opinion, give the most accurate indications because of the fact that this route closely parallels Plan C and the traffic potential is more likely to approach the assumption

made in the estimate. All of the estimates must be regarded as optimistic because no allowance has been made in the revenues for the shortening of the routes.

In our opinion, the selection of an alternate route for Plan C lies between Routes Nos. 1 and 2, because of their advantage in directness of routing over Route No. 3. Route No. 2 is the nearest to a direct substitute for Plan C.

VI. PROJECTION OF LIRR PASSENGER TRAFFIC



VI. PROJECTION OF LIRR PASSENGER TRAFFIC

As requested in the course of our studies, we have developed trends of the passenger traffic of the Long Island Railroad and have prepared projections on the bases of past trends. The studies are summarized on Table H and Charts Nos. 1 and 2. They were made separately by the counties served as follows:

Kings and Queens Counties
Nassau County
Suffolk County

Basic data for the studies were made accessible to us by the Long Island Railroad Company, including total passengers carried on the entire system and records of commutation tickets sold for riding between each outlying station and the terminal stations. We used the detailed commutation ticket data to prorate the total annual passenger traffic by counties. The computations were made in detail for each year 1948-1955 and for 3 significant years in the period 1933-1947 with general interpolations for all intervening years. After developing the estimated distribution of total passengers by counties, we determined the rides per capita in each county by dividing by the actual population of the respective counties (interpolated for years between actual census years). By these methods we developed the trends of total passengers and of rides per capita by counties.

Projections of past trends of passenger traffic by counties to the year 1975 were made by projecting the rides per capita trends and applying to them projections of population prepared by the Regional Plan Association. Past and projected trends of rides per capita by counties are shown on Chart No. 1. The projected trends were made on the basis of straight line logarithmic projections which results in the gradually decreasing downward trends as shown on the chart. We believe that these projections are optimistic. Past and projected trends of the total passengers by counties are shown on Chart No. 2 to logarithmic scale.

The studies show (Table H) that the total passengers carried on the LIRR system reached a peak of 115,839,000 passengers and 23.2 rides per capita in 1946, following World War II. They decreased, with minor fluctuations, to 84,415,000 passengers and 14.3 rides per capita in the year 1955. The total passengers carried in 1955 is somewhat less than the total carried in 1942, at the beginning of the war-peak (85,422,000).

Projections made in these studies indicate a continuing further decrease in total system passenger traffic in future years as follows:

	<u>Total Passengers (Thousands)</u>	<u>Population (Thousands)</u>	<u>Rides Per Capita</u>
<u>Actual</u>			
1946	115,839	4,984	23.2
1950	90,486	5,238	17.3
1955	84,415	5,895	14.3
<u>Projected</u>			
1960	82,150	6,315	13.0
1965	81,600	6,550	12.5
1970	80,350	6,705	12.0
1975	79,100	6,820	11.6

Total passengers estimated for the year 1975 (79,100,000) are approximately 6 per cent below the total carried in 1955 (84,415,000).

Each of the subdivisions of the system has a distinctive trend of total passengers but Suffolk County is the only one for which an increasing trend is indicated, as is shown by the following tabulation:

	<u>Total Passengers by Counties (Thousands)</u>			
	<u>Kings and Queens Cos.</u>	<u>Nassau County</u>	<u>Suffolk County</u>	<u>Total System</u>
<u>Actual</u>				
1946	29,688	72,872	13,279	115,839
1950	13,290	65,037	12,159	90,486
1955	8,044	63,908	12,463	84,415
<u>Projected</u>				
1960	6,150	62,000	14,000	82,150
1965	4,700	61,000	15,900	81,600
1970	3,650	59,000	17,700	80,350
1975	2,800	57,000	19,300	79,100

The past trends upon which the estimates are based, include the effects of past abandonments of service. This may have some influence in somewhat exaggerating the projected downward trends for Kings and Queens Counties. However, it may be that other similar changes will take place on account of further traffic decreases. As a whole we are of the opinion that the total projection is on the optimistic side.

The greatest single factor producing a downward trend in railroad commuter traffic in the face of increasing population, here as elsewhere, is the continued rapid increase in the use of private automobiles. The extensive parkway developments on Long Island, which are undoubtedly responsible for greatly accelerating the development of the area, intensify the automobile competition with mass transportation facilities to even a greater degree.

Comparisons of the general trends of LIRR passengers and automobile registrations in Nassau and Suffolk Counties in the past decade follows:

<u>Year</u>	<u>LIRR Passengers (Thousands)</u>			<u>Passenger Auto Registrations (Thousands)</u>		
	<u>Nassau</u>	<u>Suffolk</u>	<u>Total</u>	<u>Nassau</u>	<u>Suffolk</u>	<u>Total</u>
1950	65,037	12,159	77,196	231	97	328
1955	63,908	12,463	76,371	376	164	540
Per Cent of 1950	(98.3)	(102.5)	(98.9)	(162.8)	(169.1)	(164.6)

The tabulation shows that in the past five years the total passengers of the Long Island Railroad in the above two counties have decreased about 1.1 per cent, while the automobile registrations have increased about 65 per cent. Estimated population of the two counties increased from 949,000 in 1950 to 1,420,000 in 1955, an increase of about 50 per cent. Automobile registrations per capita have increased from 0.346 to 0.380, an increase of about 10 per cent in the five-year period.

VII. SUMMARY AND CONCLUSIONS



VII. SUMMARY AND CONCLUSIONS

Detailed studies presented in this report cover projected extensions of rapid transit service from the New York City transit system into the area generally east of Flushing. One of the plans involves the use of the branch of the Long Island Railroad extending to Port Washington in Nassau County. The other two plans are based on the proposed projection of a surface rapid transit extension on the Horace Harding Expressway terminating within Queens County.

Early in the course of our studies it developed that final construction plans, awarding of contracts and actual construction work on the Horace Harding Expressway had progressed to such a degree that the effectuation of the extensive revisions necessary to accommodate a rapid transit line would be very unlikely. Our studies were, however, continued to completion at the direction of representatives of the Metropolitan Rapid Transit Commission. The usefulness of the studies of the Horace Harding Expressway route may, therefore, be limited to whatever general comparative value they may have in considering the potentialities of the alternate plan of integrating the Port Washington Branch of the LIRR with the City's transit system or their general application to possible consideration of a substitute for the Horace Harding Expressway route on streets generally paralleling the Expressway. We have made a general field reconnaissance of several possible routes.

The results of the detailed studies of the alternate rapid transit plans for the routes originally specified are summarized below:

Proposed Plans

The routes covered by the proposed rapid transit extensions, shown on Maps Nos. 1, 2 and 3 respectively, are briefly as follows:

Plan A - Integration of the existing Port Washington Branch of the LIRR into the City's transit system by connection with the proposed 76th Street East River Tunnel Route extending to the 6th Avenue Subway.

Plan B - A surface rapid transit extension on the median strip of the Horace Harding Expressway to Marathon Boulevard, connecting with the proposed 76th Street East River Tunnel Route, extending to the 6th Avenue Subway. The route in this plan also uses a short section of the Long Island Railroad assumed to be jointly operated.

Plan C - A surface rapid transit extension on the median strip of Horace Harding Expressway as in Plan B, but connecting directly with the existing IRT Flushing Line near 111th Street.

All of the plans are for two track lines (including the double tracking of the outer end of Plan A in 1965). The route lengths are as follows:

Plan A - Woodside to Port Washington, via LIRR 15.49 miles

Plan B - Woodside to Marathon Parkway via LIRR,
Flushing Meadow Park and Horace
Harding Expressway (includes 3.94
miles on LIRR) 10.93 miles

Plan C - 111th Street Flushing to Marathon Parkway, via Flushing Meadow Park and Horace Harding Expressway 6.99 miles

The riding distance from 34th Street Manhattan to Woodside via the proposed 76th Street East River Tunnel Route is 6.1 miles (Plans A and B). The distance from 34th Street to 111th Street via the IRT Flushing line is 8.3 miles. (Plan C)

Indicative Costs of Facilities

Estimated costs of construction, acquisition or alteration of fixed facilities, including necessary rolling stock, are as follows:

	Total Costs to Years		
	1955	1965	1975
	(Thousands)		
Plan A	\$35,873	\$43,642	\$47,217
Plan B	40,450	44,633	46,063
Plan C	38,580	42,688	44,438

Details of the estimates of cost or value of structures and fixed equipment are shown on Tables F, F-1 and F-2. Summaries of cost including cars are shown on Table G. For Plan A, the cost of structures and fixed equipment is based upon the estimated reproduction cost less depreciation of the Port Washington Branch, plus the cost of modifications of the railroad for rapid transit operation. For Plan B, the cost of structures and fixed equipment is based on the estimated

construction cost of the extension on Horace Harding Expressway, plus the cost of necessary modifications on the section of the Long Island Railroad proposed for joint use and the cost of connection to the 76th Street East River Tunnel Route. For Plan C the cost of structures and fixed equipment includes the cost of the extension on Horace Harding Expressway and of the connection with the IRT Flushing line.

Additional costs in future years cover provision for double-tracking the portion of the line beyond City limits for Plan A in year 1965, and additional substation capacity for Plans B and C in the same year. Estimates of the cost of cars required are shown separately on Table G for all plans. Estimates for Plans A and B are based on 60 ft x 10 ft cars and for Plan C on 50 ft x 8-1/2 ft cars, the latter conforming with the size now operated on the IRT Flushing line.

No amounts are included in the estimates for the construction of the 76th Street East River Tunnel route which is estimated to cost approximately \$110,000,000, excluding cars.

Public Benefits

The general area covered by the proposed rapid transit extensions is outlined by shaded lines on Map No. 7, including the northeastern section of Queens County and an adjacent section of Nassau County. Time-saving benefits for each of the proposed plans are shown by contours on Maps Nos. 4, 5 and 6. These maps also show the distribution of 1950 population.

The time-savings shown are based on comparisons of the riding time to Manhattan via the proposed rapid transit routes and bus feeders, versus similar rides using existing bus and rapid transit facilities. They do not take into consideration any comparison with time of travel via the Long Island Railroad.

The estimated population in year 1955 within the time-saving influence of the proposed rapid transit lines, including bus feeders, is as follows:

Estimated Population 1955 (Thousands)

	<u>Queens Co.</u>	<u>Nassau Co.</u>	<u>Total</u>
Plan A	253	165	418
Plan B	317	243	560
Plan C	265	238	503

Estimated time-savings as compared with the use of existing rapid transit lines and bus feeders are shown on Table A. In Queens the time-savings range up to 20 or 25 minutes, and in Nassau County they range generally between 5 minutes and 35 or 40 minutes. The estimated average time-savings (Table A) based on the approximate ultimate population distribution are as follows:

Estimated Ultimate Time-Saving (Minutes)

	<u>Queens Co.</u>	<u>Nassau Co.</u>	<u>Total</u>
Plan A	4.5	12.5	10.7
Plan B	5.8	9.6	8.9
Plan C	5.4	9.3	8.6

Compared with the time of travel on the Port Washington Branch of the LIRR, all of the proposed plans show time losses. The average time losses for rides to midtown Manhattan from Queens County would range between 7.0 and 8.9 minutes (Table A-1). From Nassau County the time losses would be much greater from the general areas adjacent to the Port Washington Branch.

The time losses as compared with the present service on the Port Washington Branch is of particular significance under Plan A, since in that case the present service would be discontinued and its present users inconvenienced by the time loss, although benefiting by decreased fares.

A detailed comparison of time and fares for Plan A with those of the existing railroad service is shown in detail on Table B. Under Plans B and C, passengers originating in the general area served would have a choice of the railroad and rapid transit service.

Base Fares

Base fares assumed in the studies include the present 15-cent fares on bus and rapid transit lines. In Plan A, a second 15-cent fare was assumed for through rides crossing City line. On Nassau County bus lines the present through zone rates were assumed to remain unchanged. A fare reduction of 15 cents would result for a considerable number of passengers

who now use bus feeder lines to reach the subway system but whose origin is within walking distance of the proposed rapid transit lines. In Plan A the fare reductions on the proposed route would be very substantial due to the substitution of the base rates for the existing railroad rates. (Table B)

Passengers and Passenger Revenue

The estimated volumes of passenger traffic diverted to the proposed lines is closely related to the specific public benefits. Diversions of passengers to the proposed lines in 1955 range between 17.0 per cent and 18.1 per cent of the total through traffic originating in the affected area, including through passengers on all mass transportation facilities and in private automobiles.

Diversions in Plans B and C are very close in source and amount. In Plan A the diversion is somewhat less in total and the diversion from the LIRR is a very much larger proportion. (See table on page 31a of report.) In this case it is estimated that nearly 30 per cent of the passengers carried by the proposed rapid transit line would be passengers now using the railroad for which it is substituted.

Estimated total annual passengers carried in the three plans, including local traffic, ranges between 37,000,000 and 37,700,000 passengers in year 1955, and between 51,000,000 and 54,100,000 in 1975.

Annual passenger revenues, including the substantial amounts of revenue diverted from existing facilities are estimated as follows:

Annual Passenger Revenue (Thousands)

	<u>Year 1955</u>	<u>Year 1965</u>	<u>Year 1975</u>
Plan A	\$ 7,207	\$ 9,379	\$10,177
Plan B	5,568	7,385	7,991
Plan C	5,465	7,267	7,872

Estimated Operating Results

Estimates of financial results of operation are shown for all plans on Table G for years 1955, 1965 and 1975. These estimates take into consideration the total revenues of passengers using the proposed extensions as tabulated above; the additional operating expenses entailed by the extensions including the cost of the car mileage to Manhattan required to carry the passenger loads; and a measure of the interest and depreciation charges based on 6 per cent of the indicative construction or acquisition costs, and including the cost of cars necessary to provide service to Manhattan. The results shown on Table G are before consideration of the net financial effects of the extensions upon existing facilities.

Before interest and depreciation charges the results for all plans show operating incomes in years 1965 and 1975 ranging from \$590,000 to \$1,519,000. After allowance of 6 per cent for interest and depreciation the net results shown on Table G are deficits for all years as follows:

Our general conclusions with respect to financial results are that Plan A would be the least burdensome to the finances of New York City. After allowing for an undetermined annual charge in Plan B for joint use privileges on the Long Island Railroad, the overall financial results of Plan B would, we believe, be in the same general field as Plan C. We believe that Plan A would therefore result in a financial advantage of the order of \$600,000 to \$800,000 per year as compared with the alternate plans.

Other Significant Factors

Other significant advantages and disadvantages of the respective plans are as follows:

Plan A

Requires the construction of the 76th Street East River Tunnel route at an estimated cost of \$110,000,000.

It would adversely affect substantially all of the present users of the Port Washington Branch of the LIRR as to travel time to Manhattan but would introduce much lower fares. It would relieve Pennsylvania Station of the operation of 7 or 8 trains in peak hours, releasing capacity for increased service on other branches, if required. Such increased service would depend upon provisions for increased operations through Jamaica Station.

It would benefit a smaller proportion of the traffic now using bus and rapid transit lines than Plans B and C.

Deficits after Allowance of
6% for Interest and Depreciation (Thousands)

	<u>Year 1955</u>	<u>Year 1965</u>	<u>Year 1975</u>
Plan A	\$ 1,997	\$1,503	\$ 1,314
Plan B	2,461	1,580	1,276
Plan C	2,645	1,971	1,763

Taking into consideration the net effects on other City-owned facilities, on an approximate basis, we believe that the overall effect on New York City finances would be the following range of deficits:

Deficits in New York City Finances (Thousands)

	<u>Year 1955</u>	<u>Year 1965</u>	<u>Year 1975</u>
Plan A*	\$ 2,862	\$ 2,758	\$ 2,629
Plan B	3,461	2,910	2,656
Plan C	3,645	3,301	3,203

*Includes tax losses to the City of New York

The amounts included in the estimates for interest and depreciation, and which are reflected in the above deficits, range between \$2,152,000 and \$2,833,000 as shown on Table G.

On a per passenger basis the above deficits to the City of New York range as follows:

Deficits in New York City Finances
Per Passenger Carried

	<u>Year 1955</u>	<u>Year 1965</u>	<u>Year 1975</u>
Plan A	7.6¢	5.8¢	5.2¢
Plan B	9.2¢	5.8¢	4.9¢
Plan C	9.9¢	6.7¢	6.0¢

All of the above results shown for Plan B exclude consideration of rental for joint use of a section of the Long Island Railroad.

It would directly serve the Port Washington area of Nassau County which would be considered a disadvantage (versus railroad service) by many of the present residents.

Operation in Nassau County would involve special legal considerations.

Plans B and C

Plans B and C depend on the use of the Horace Harding Expressway, which does not now appear practicable, because of the progress made in the planning and construction of the Expressway. It is, however, an advantageous route from the viewpoint of its general location and from the viewpoint of low construction costs for a rapid transit line.

Plan B would also be dependent upon the construction of the 76th Street Tunnel Route and would require negotiation of a joint-service agreement with LIRR.

Plan C would connect directly with the existing IRT Flushing line and would not be dependent upon the construction of a new trunk route.

Plan C operating capacity would be determined by the capacity of the IRT Flushing line. Our estimates indicate that by lengthening stations to accommodate 11-car trains, sufficient capacity would be provided for the operation of Plan C to 1975 or later.

General Conclusions
Plans A, B and C

Neglecting consideration of the probable unavailability of the Horace Harding Expressway for rapid transit use and also disregarding the greater cost to the City of New York, we believe that Plans B or C (depending upon the terms for joint use for Plan B) would be more advantageous than Plan A for a rapid transit extension. This viewpoint is based on the fact that these plans would not interfere with the substantial volume of traffic preferring railroad service, and the fact that Plans B and C would provide a greater spread of benefits to passengers dependent upon the existing shorter rapid transit lines.

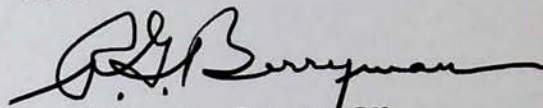
Three tentative routes, alternative to the Horace Harding Expressway route, but of shorter lengths, are shown on Map No. 8. Of subway construction, at higher costs than Plans B and C, their annual costs for interest and depreciation would range between \$2,400,000 and \$4,100,000 greater than for Plans B and C, excluding consideration of variations in number of cars required. We have made no detailed analyses for these routes but the financial results would undoubtedly be considerably more burdensome than Plans B or C as shown by indicative comparisons made in Section V. From the viewpoint of possible construction within the near future, the extension of the IRT-Flushing Line, via either Routes 1 or 2 shown on Map No. 8, appears to have the greatest possibilities.

Long Island Railroad Passenger Traffic

Studies of the trends of Long Island Railroad passenger traffic, by counties, and estimated future projections indicate a probable continued gradual downward trend, resulting in a reduction of about 6 per cent in the present volume by 1975.

Respectfully submitted,

DAY & ZIMMERMANN, Inc.



R. G. Berryman
Project Manager

M A P S

M A P S

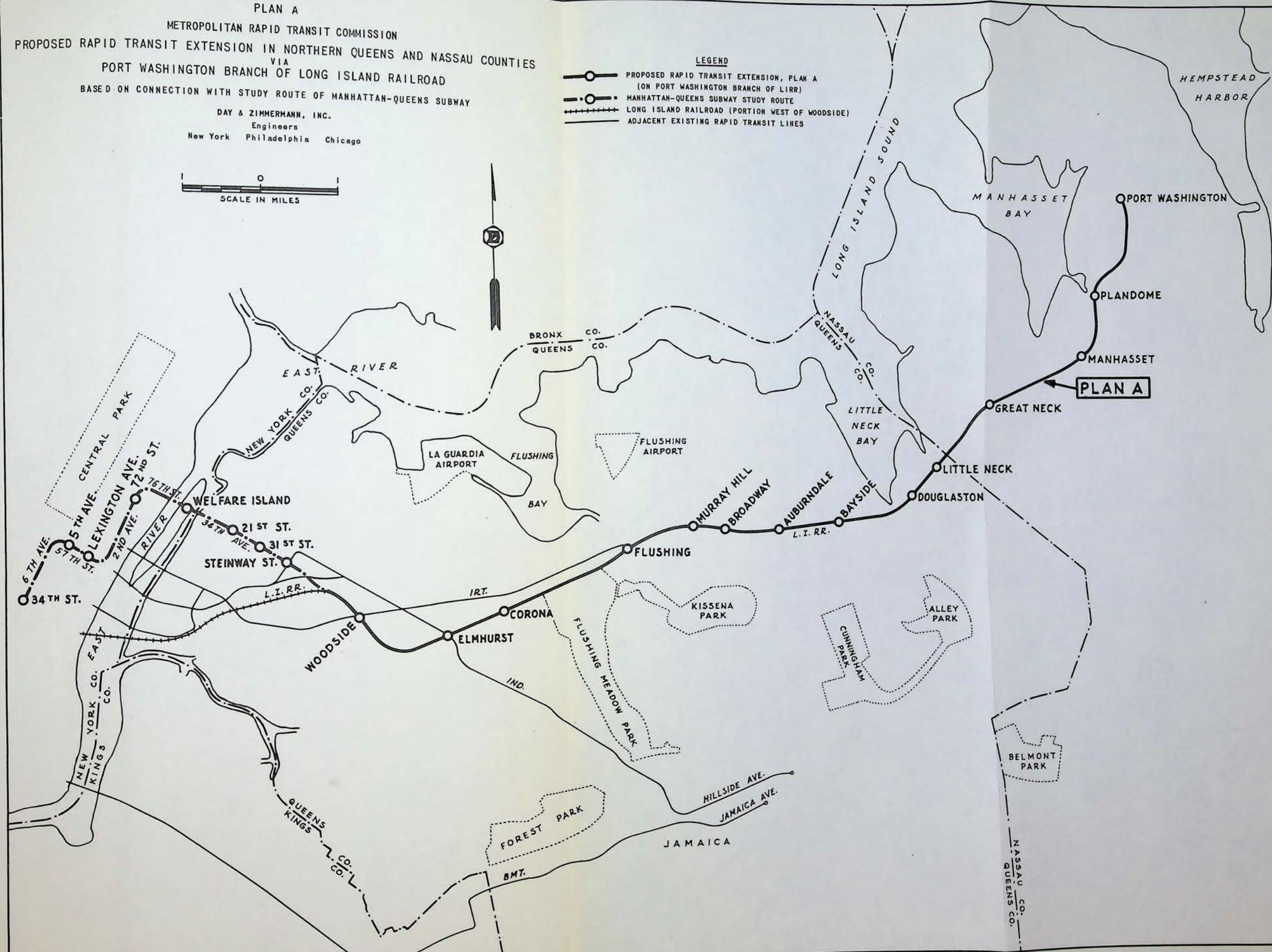
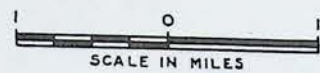
C H A R T S

T A B L E S

PLAN A
METROPOLITAN RAPID TRANSIT COMMISSION
PROPOSED RAPID TRANSIT EXTENSION IN NORTHERN QUEENS AND NASSAU COUNTIES
VIA
PORT WASHINGTON BRANCH OF LONG ISLAND RAILROAD
BASED ON CONNECTION WITH STUDY ROUTE OF MANHATTAN-QUEENS SUBWAY

DAY & ZIMMERMANN, INC.
Engineers
New York Philadelphia Chicago

- LEGEND
- PROPOSED RAPID TRANSIT EXTENSION, PLAN A (ON PORT WASHINGTON BRANCH OF LIRR)
 - MANHATTAN-QUEENS SUBWAY STUDY ROUTE
 - LONG ISLAND RAILROAD (PORTION WEST OF WOODSIDE)
 - ADJACENT EXISTING RAPID TRANSIT LINES

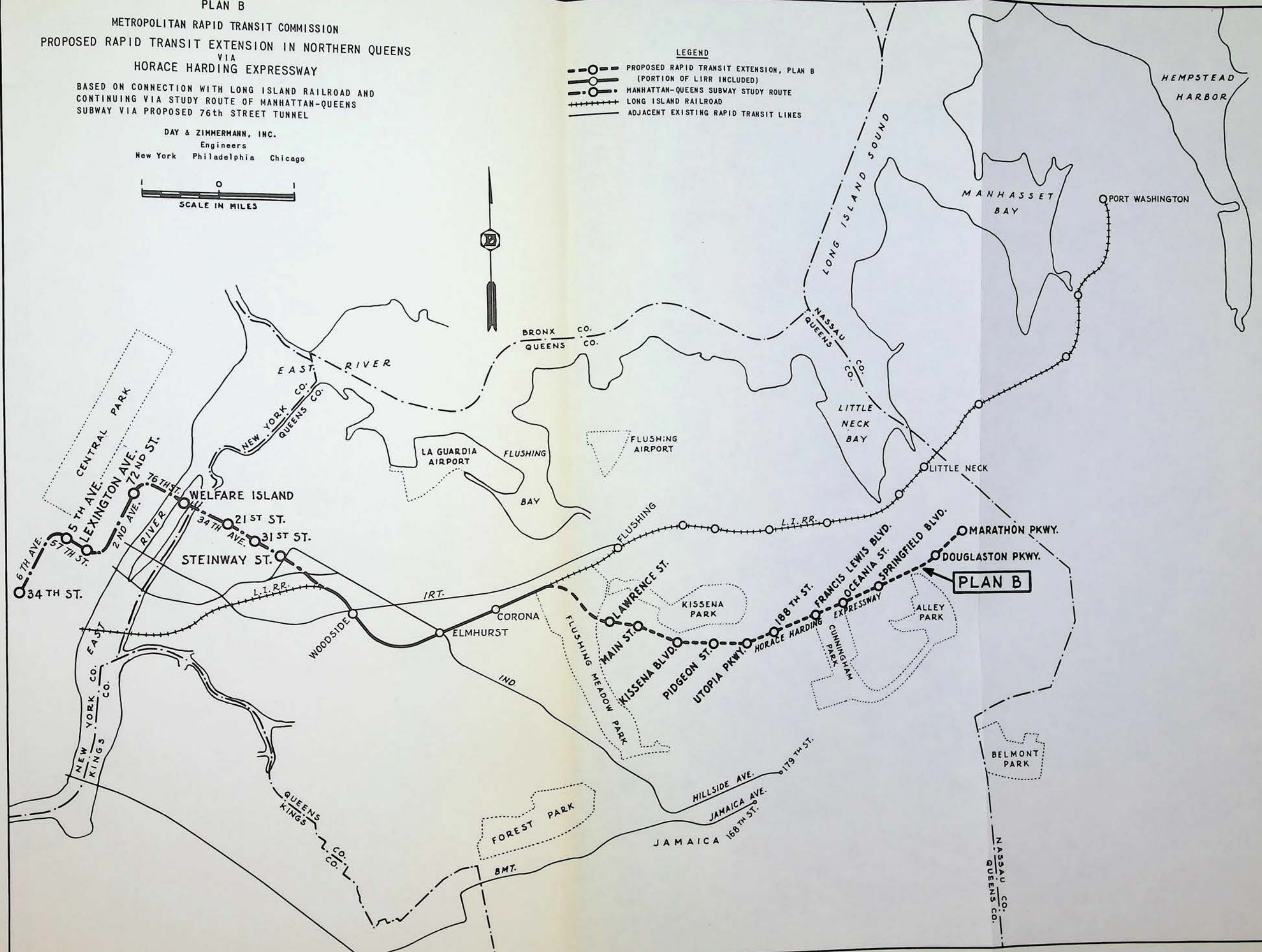


PLAN B
METROPOLITAN RAPID TRANSIT COMMISSION
PROPOSED RAPID TRANSIT EXTENSION IN NORTHERN QUEENS
VIA
HORACE HARDING EXPRESSWAY
BASED ON CONNECTION WITH LONG ISLAND RAILROAD AND
CONTINUING VIA STUDY ROUTE OF MANHATTAN-QUEENS
SUBWAY VIA PROPOSED 76th STREET TUNNEL

DAY & ZIMMERMANN, INC.
Engineers
New York Philadelphia Chicago



- LEGEND
- PROPOSED RAPID TRANSIT EXTENSION, PLAN B (PORTION OF LIRR INCLUDED)
 - MANHATTAN-QUEENS SUBWAY STUDY ROUTE
 - LONG ISLAND RAILROAD
 - ADJACENT EXISTING RAPID TRANSIT LINES

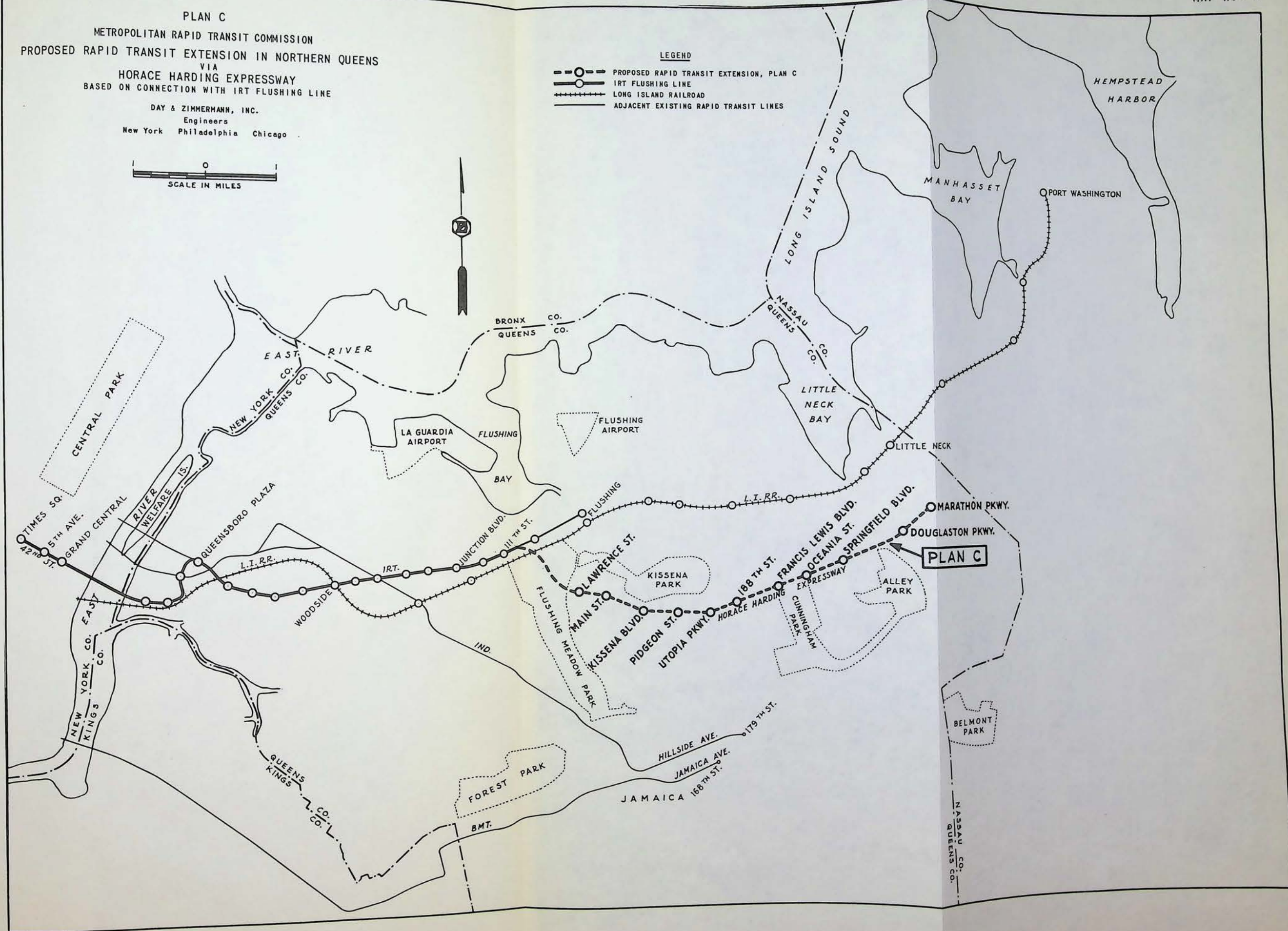


PLAN C
METROPOLITAN RAPID TRANSIT COMMISSION
PROPOSED RAPID TRANSIT EXTENSION IN NORTHERN QUEENS
VIA
HORACE HARDING EXPRESSWAY
BASED ON CONNECTION WITH IRT FLUSHING LINE

DAY & ZIMMERMANN, INC.
Engineers
New York Philadelphia Chicago



- LEGEND
- PROPOSED RAPID TRANSIT EXTENSION, PLAN C
 - IRT FLUSHING LINE
 - LONG ISLAND RAILROAD
 - ADJACENT EXISTING RAPID TRANSIT LINES



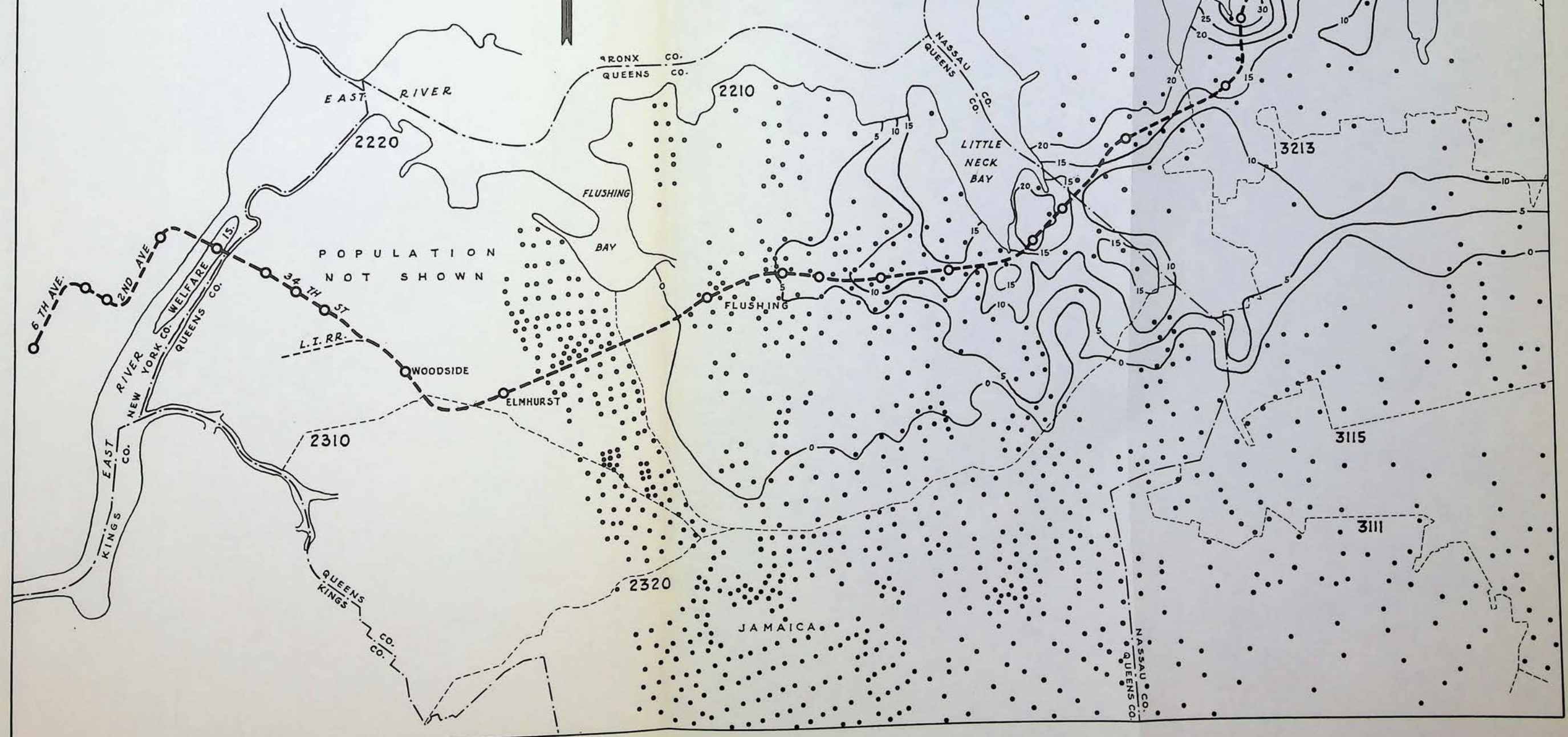
PLAN A
METROPOLITAN RAPID TRANSIT COMMISSION
PROPOSED RAPID TRANSIT EXTENSION IN NORTHERN QUEENS
AND NASSAU COUNTY VIA PORT WASHINGTON BRANCH
OF LONG ISLAND RAILROAD
BASED ON CONNECTION WITH STUDY ROUTE OF MANHATTAN-QUEENS SUBWAY

ESTIMATED TIME SAVING
FOR
RIDING BETWEEN QUEENS AND NASSAU COUNTIES
AND
MIDTOWN, MANHATTAN

DAY & ZIMMERMANN, INC.
Engineers
New York Philadelphia Chicago
SCALE IN MILES
1 0 1

LEGEND
—○— PROPOSED RAPID TRANSIT LINE AND EXTENSION
—5— TIME SAVING CONTOURS, MINUTES
• POPULATION 1950, 1 SPOT EQUALS 1000 PEOPLE
--- TRAFFIC SECTION BOUNDARIES

NOTES:
TIME SAVING CONTOURS SHOW SAVING VIA PROPOSED
RAPID TRANSIT LINE AND INTERSECTING BUS LINES OVER
PRESENT TIME VIA EXISTING RAPID TRANSIT LINES AND
INTERSECTING BUS LINES. TIME VIA LONG ISLAND RAILROAD
NOT CONSIDERED IN THIS STUDY.



PLAN B
METROPOLITAN RAPID TRANSIT COMMISSION
PROPOSED RAPID TRANSIT EXTENSION IN NORTHERN QUEENS
VIA HORACE HARDING EXPRESSWAY
BASED ON CONNECTION WITH LONG ISLAND RAILROAD
AND CONTINUING VIA STUDY ROUTE OF MANHATTAN-QUEENS SUBWAY

ESTIMATED TIME SAVING
FOR
RIDING BETWEEN QUEENS AND NASSAU COUNTIES
AND
MIDTOWN, MANHATTAN

DAY & ZIMMERMANN, INC.
Engineers
New York Philadelphia Chicago

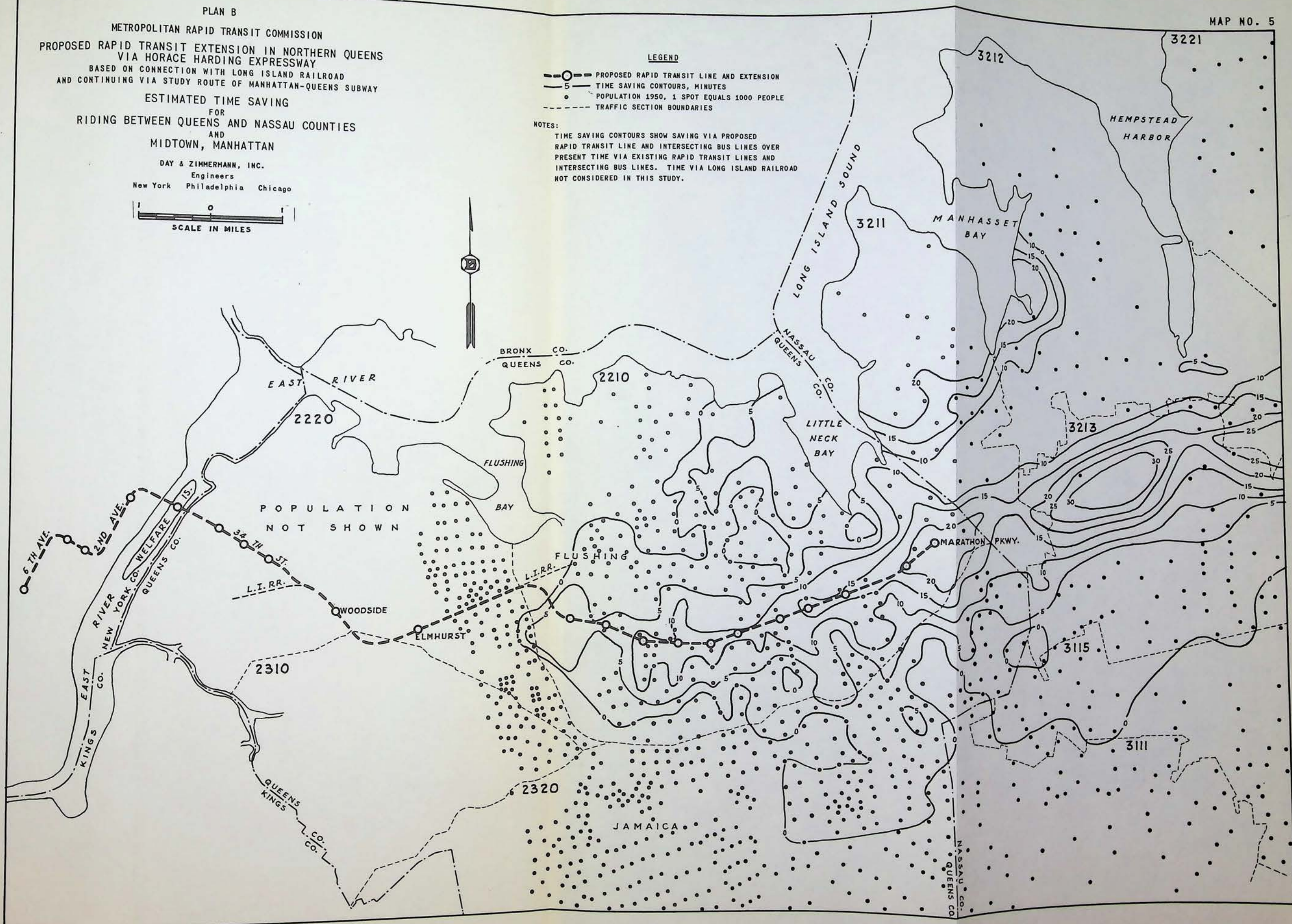
SCALE IN MILES
1 0 1

LEGEND

- PROPOSED RAPID TRANSIT LINE AND EXTENSION
- 5— TIME SAVING CONTOURS, MINUTES
- POPULATION 1950, 1 SPOT EQUALS 1000 PEOPLE
- - - - - TRAFFIC SECTION BOUNDARIES

NOTES:
TIME SAVING CONTOURS SHOW SAVING VIA PROPOSED
RAPID TRANSIT LINE AND INTERSECTING BUS LINES OVER
PRESENT TIME VIA EXISTING RAPID TRANSIT LINES AND
INTERSECTING BUS LINES. TIME VIA LONG ISLAND RAILROAD
NOT CONSIDERED IN THIS STUDY.

MAP NO. 5



PLAN C
METROPOLITAN RAPID TRANSIT COMMISSION
PROPOSED RAPID TRANSIT EXTENSION IN NORTHERN QUEENS
VIA HORACE HARDING EXPRESSWAY
BASED ON CONNECTION WITH IRT FLUSHING LINE

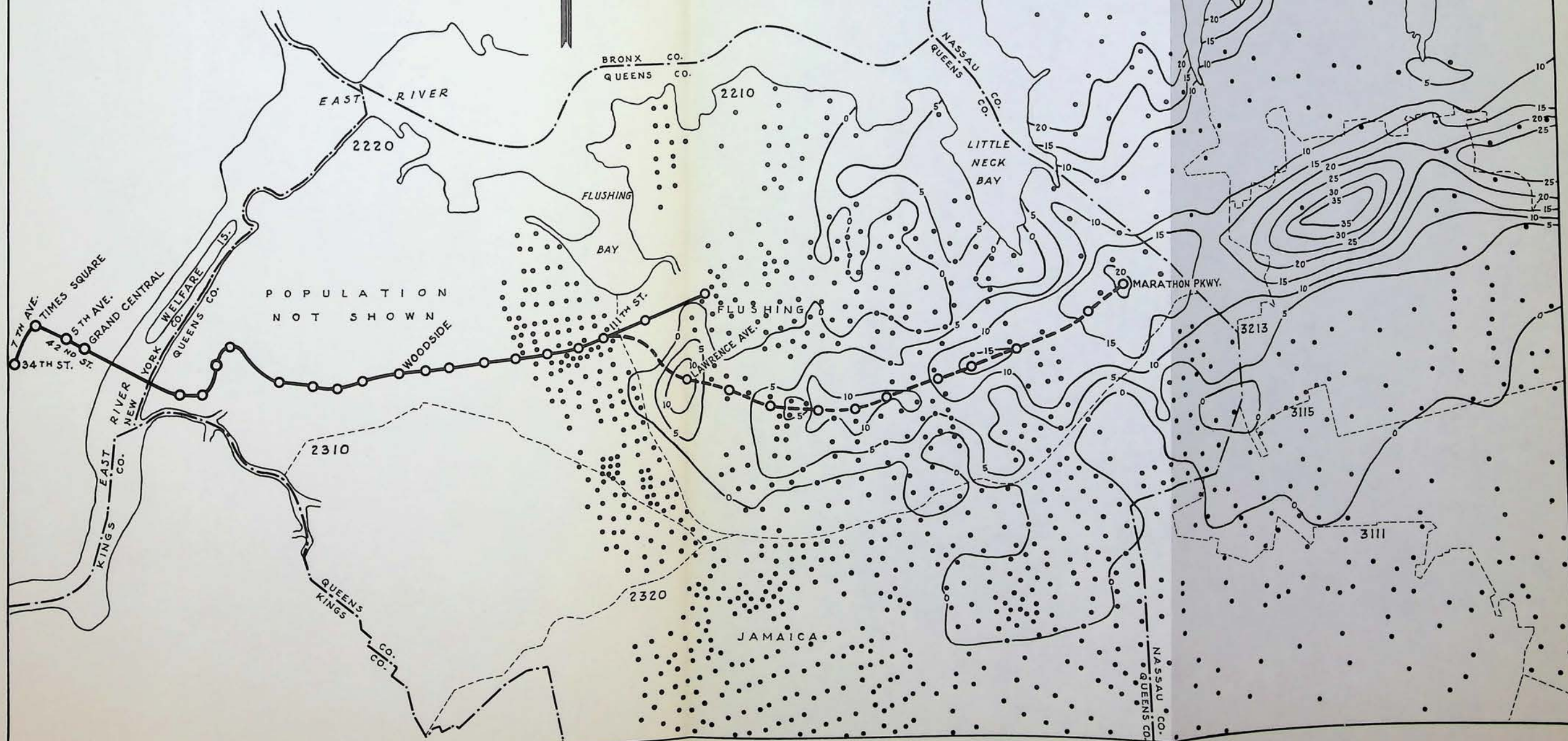
ESTIMATED TIME SAVING
FOR
RIDING BETWEEN QUEENS AND NASSAU COUNTIES
AND
MIDTOWN, MANHATTAN

DAY & ZIMMERMANN, INC.
Engineers
New York Philadelphia Chicago

1 0 1
SCALE IN MILES

- LEGEND**
- IRT FLUSHING LINE
 - PROPOSED RAPID TRANSIT EXTENSION
 - TIME SAVING CONTOURS, MINUTES
 - POPULATION 1950, 1 SPOT EQUALS 1000 PEOPLE
 - TRAFFIC SECTION BOUNDARIES

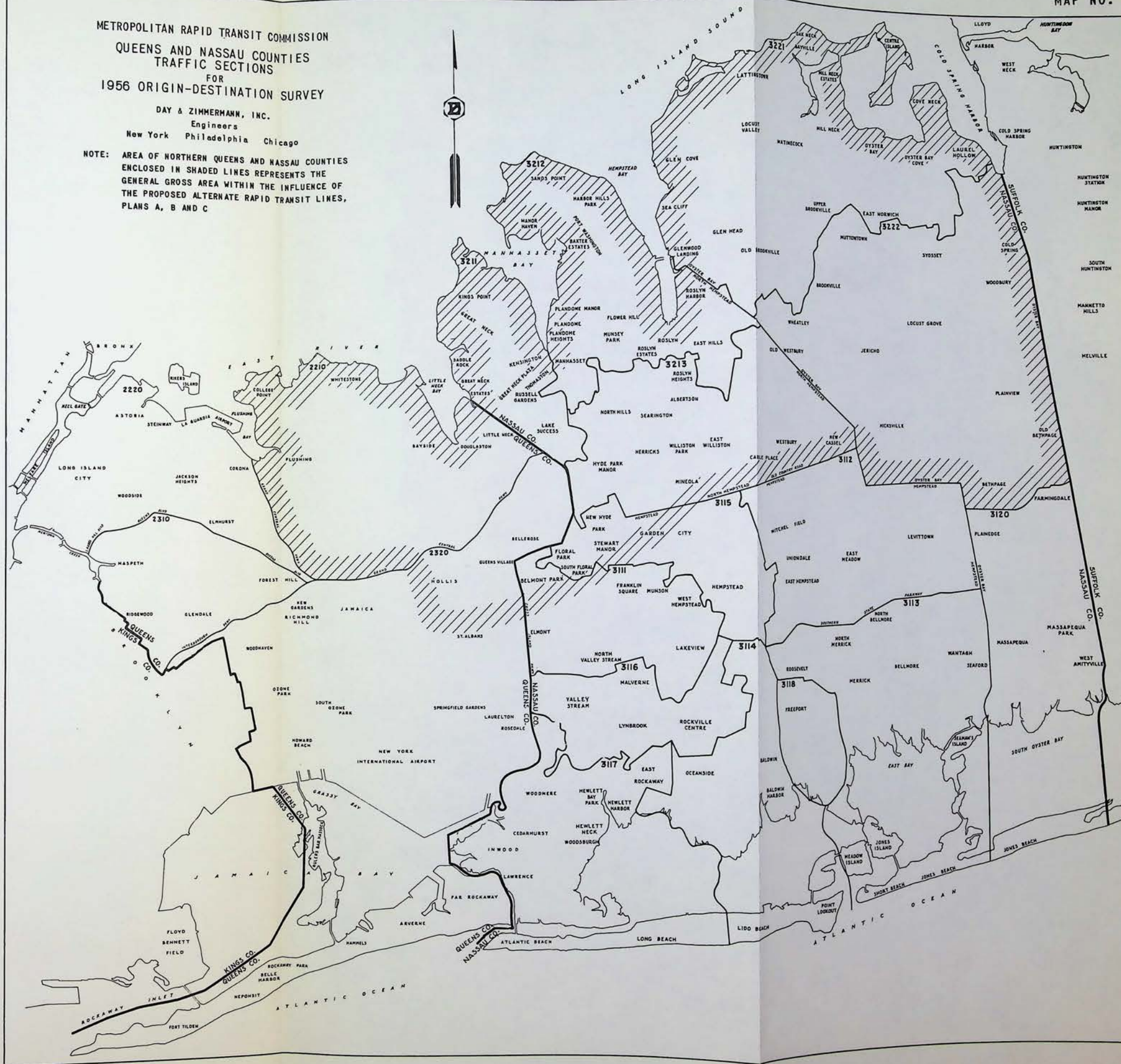
NOTES:
TIME SAVING CONTOURS SHOW SAVING VIA PROPOSED RAPID TRANSIT LINE AND INTERSECTING BUS LINES OVER PRESENT TIME VIA EXISTING RAPID TRANSIT LINES AND INTERSECTING BUS LINES. TIME VIA LONG ISLAND RAILROAD NOT CONSIDERED IN THIS STUDY.



METROPOLITAN RAPID TRANSIT COMMISSION
QUEENS AND NASSAU COUNTIES
TRAFFIC SECTIONS
FOR
1956 ORIGIN-DESTINATION SURVEY

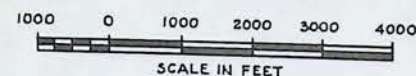
DAY & ZIMMERMANN, INC.
Engineers
New York Philadelphia Chicago

NOTE: AREA OF NORTHERN QUEENS AND NASSAU COUNTIES
ENCLOSED IN SHADED LINES REPRESENTS THE
GENERAL GROSS AREA WITHIN THE INFLUENCE OF
THE PROPOSED ALTERNATE RAPID TRANSIT LINES,
PLANS A, B AND C

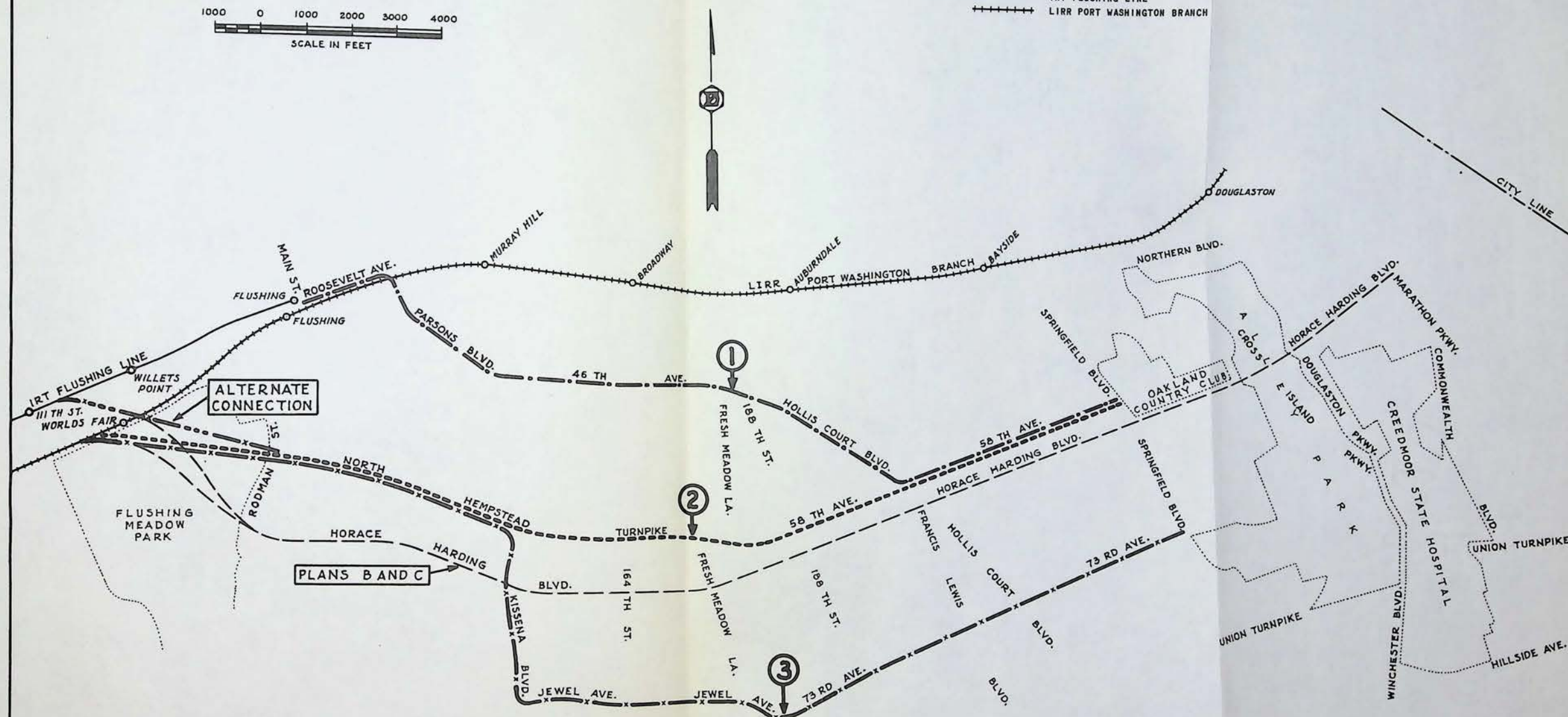


METROPOLITAN RAPID TRANSIT COMMISSION
GENERAL RECONNAISSANCE
OF
POSSIBLE RAPID TRANSIT EXTENSIONS
ON
STREETS PARALLELING PROPOSED HORACE HARDING EXPRESSWAY

DAY & ZIMMERMANN, INC.
Engineers
New York Philadelphia Chicago



- LEGEND
- POSSIBLE RAPID TRANSIT EXTENSIONS PARALLELING HORACE HARDING EXPRESSWAY
 - x-x- HORACE HARDING EXPRESSWAY AND CONNECTIONS FOR RT PLANS B AND C
 - IRT FLUSHING LINE
 - + + + + LIRR PORT WASHINGTON BRANCH



CHARTS

METROPOLITAN RAPID TRANSIT COMMISSION
RIDES PER CAPITA OF LONG ISLAND RAILROAD PASSENGERS
BY COUNTIES OF ORIGIN FOR YEARS 1933-1955
AND
PROJECTIONS TO YEAR 1975

DAY & ZIMMERMANN, INC.
Engineers
New York Philadelphia Chicago

* DISTRIBUTION OF ACTUAL TOTAL LIRR PASSENGERS, YEARS 1933-1955,
IS BASED ON RECORDED DISTRIBUTION OF COMMUTATION TICKET SALES
FOR THROUGH RIDES.

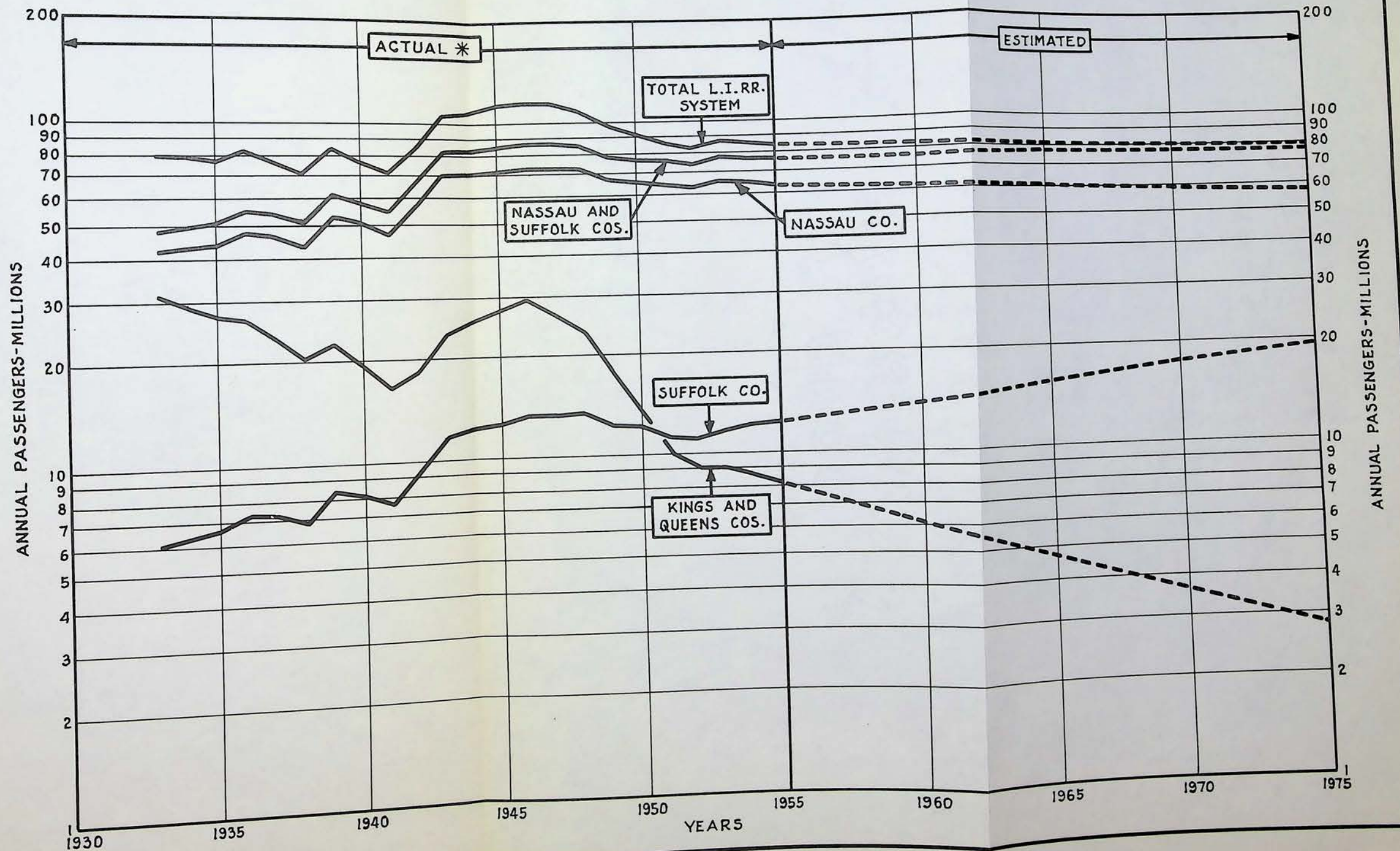
POPULATION DATA IS BASED ON U.S. CENSUS TO 1950 AND PROJECTIONS
BY THE REGIONAL PLAN ASSOCIATION TO 1975.
PROJECTIONS OF RIDES PER CAPITA ARE BASED ON LOGARITHMIC
PROJECTIONS OF RECENT TRENDS.

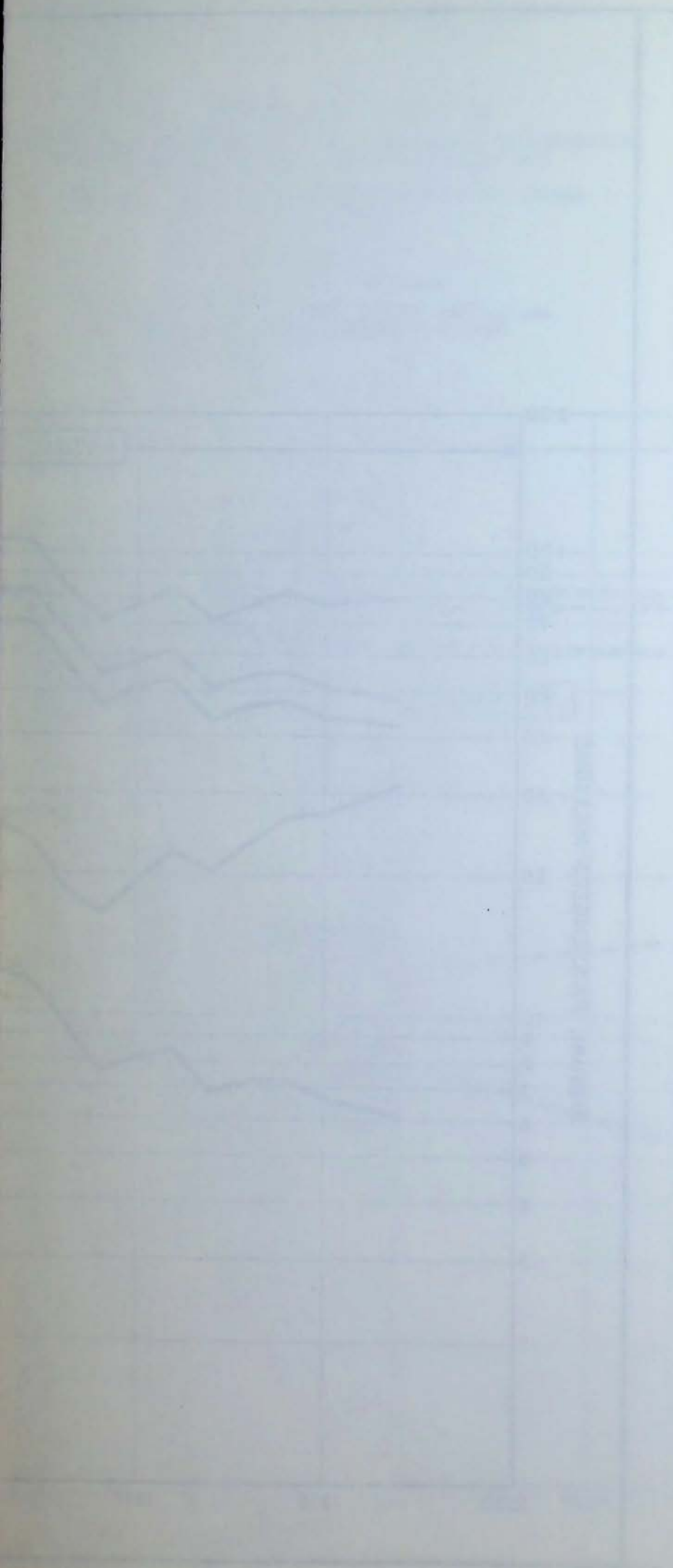


METROPOLITAN RAPID TRANSIT COMMISSION
ESTIMATED DISTRIBUTION OF LONG ISLAND RAILROAD PASSENGERS
BY COUNTIES OF ORIGIN FOR YEARS 1933-1955
AND
PROJECTIONS TO YEAR 1975 BASED ON RECENT TRENDS
(PLOTTED TO LOGARITHMIC SCALE)

DAY & ZIMMERMANN, INC.
Engineers
New York Philadelphia Chicago

* DISTRIBUTION OF ACTUAL TOTAL LIRR PASSENGERS, YEARS 1933-1955,
IS BASED ON RECORDED DISTRIBUTION OF COMMUTATION TICKET
SALES FOR THROUGH RIDES





TABLES

TABLES

METROPOLITAN RAPID TRANSIT COMMISSION

TABLE A

PLANS A, B AND C

ESTIMATED AVERAGE TIME SAVINGS TO MIDTOWN MANHATTAN

FROM NASSAU AND QUEENS COUNTIES

VIA PROPOSED PORT WASHINGTON RAPID TRANSIT LINE AND HORACE HARDING EXPRESSWAY RAPID TRANSIT LINES

Traffic Section (1)	Population (Thousands) 1955 (2)	Bus and Auto Passengers Weekday - 24 hours One Way - 1956 (3)	Potential Time Saving to Midtown Manhattan - Minutes (See Note)								
			Plan A			Plan B			Plan C		
			Port Washington Rapid Transit Line			Horace Harding R.T. Line via 76th Street Tunnel			Horace Harding R.T. Line via IRT		
			Range (4)	Average Present (5)	Average Ultimate (6)	Range (7)	Average Present (8)	Average Ultimate (9)	Range (10)	Average Present (11)	Average Ultimate (12)
<u>Queens</u>											
2210	339)		0-20	5.1	6.1	0-25	6.1	7.4	0-20	5.8	7.2
2320*	145)	190,900	0-10	0.2	0.3	0-15	2.3	2.6	0-15	2.0	2.2
Total Queens	484	190,900		3.1	4.5		4.3	5.8		3.8	5.4
<u>Nassau County</u>											
3211	38	27,381	5-25	18.0	17.5	5-25	17.2	18.1	5-25	15.6	16.5
3212	48	18,732	5-35	18.3	18.7	0-30	8.9	9.3	5-30	9.3	9.4
3213	92	23,822	0-15	8.9	7.5	0-40	5.3	12.0	0-35	4.7	11.2
3221	50	7,118	5-20	10.6	10.9	5-15	7.6	7.7	5-15	7.6	7.7
3222	77	4,690	0-15	11.5	10.2	0-15	11.5	9.7	0-15	11.5	9.3
3111*	20	6,294	0	0	0	0-5	0.1	0	0	0	0
3115*	33	10,319	0	0	0	0-5	1.5	1.1	0-5	1.4	1.1
Total Nassau County	358	98,356		14.6	12.5		7.0	9.6		7.4	9.3
Total	842	289,256		6.0	10.7		5.4	8.9		5.3	8.6

Notes:

*Part of traffic section included in general area served.

Average present time savings to Midtown Manhattan are based on time savings of proposed rapid transit lines and bus feeders over existing rapid transit lines and bus feeders as indicated by the distribution of population in relation to the time saving areas. Average ultimate time savings are based on the same extent of time savings without consideration of the location of population, viz: they are determined on a gross area basis. The time savings shown do not take into consideration the time of travel on the L.I.R.R.

METROPOLITAN RAPID TRANSIT COMMISSION

PLANS A, B AND C

ESTIMATED TIME SAVINGS AND FARE SAVINGS TO MIDTOWN AND LOWER MANHATTAN

TABLE A-1

Traffic Section	Plan A Proposed Port Washington Line Via L.I.R.R.						Plan B Proposed Horace Harding Line Via L.I.R.R.						Plan C Proposed Horace Harding - JRT Flushing Line					
	Midtown Manhattan Passengers			Lower Manhattan Passengers			Midtown Manhattan Passengers			Lower Manhattan Passengers			Midtown Manhattan Passengers			Lower Manhattan Passengers		
	Passengers	Average Time Savings-Minutes	Fare Savings-Cents (Notes A & B)	Passengers	Average Time Savings-Minutes	Fare Savings-Cents	Passengers	Average Time Savings-Minutes	Fare Savings-Cents (Note A)	Passengers	Average Time Savings-Minutes	Fare Savings-Cents	Passengers	Average Time Savings-Minutes	Fare Savings-Cents (Note A)	Passengers	Average Time Savings-Minutes	Fare Savings-Cents
Bus and Auto Passengers																		
Queens County																		
2210)																		
2320*	124,100	6.1	-		0.6	-	124,100	7.4	-	38,200	1.9	-	124,100	7.2	-	38,200	7.2	-
Total Queens	124,100	0.3	-	38,200	(5.2)	-	124,100	2.6	-	38,200	(2.9)	-	124,100	2.2	-	38,200	2.2	-
Nassau County																		
3211	6,053	17.5	6 to 20	609	12.0	6 to 20	6,053	18.1	-	609	12.6	-	6,053	16.5	-	609	16.5	-
3212	4,662	18.7	20 to 41	372	13.2	20 to 41	4,662	9.3	-	372	3.8	-	4,662	9.4	-	372	9.4	-
3221	2,400	7.5	-	49	2.0	-	2,400	12.0	-	49	6.5	-	2,400	11.2	-	49	11.2	-
3222	2,064	10.9	-	265	5.4	-	2,064	7.7	-	265	2.2	-	2,064	7.7	-	265	7.7	-
3111*	425	10.2	-	168	4.7	-	425	9.7	-	168	4.2	-	425	9.3	-	168	9.3	-
3115*	1,221	-	-	91	-	-	1,221	-	-	91	-	-	1,221	-	-	91	-	-
	1,001	-	-	206	-	-	1,001	1.1	-	206	(4.4)	-	1,001	1.1	-	206	1.1	-
Total Nassau	17,826	-	-	1,760	-	-	17,826	-	-	1,760	-	-	17,826	-	-	1,760	-	-
Total	141,926	-	-	39,960	-	-	141,926	-	-	39,960	-	-	141,926	-	-	39,960	-	-
L.I.R.R. (P.W.Br.) Passengers																		
Queens County																		
2210)																		
2320*	4,204	(7.0)	-	1,492	(9.5)	-	4,204	(7.4)	-	1,492	(9.9)	-	4,204	(8.9)	-	1,492	(5.9)	-
Total Queens	4,204	-	-	1,492	-	-	4,204	-	-	1,492	-	-	4,204	-	-	1,492	-	-
Nassau County																		
3211	2,651	(9.0)	28	942	(11.5)	43	2,651	(21.0)	15	942	(23.5)	30	2,651	(23.0)	15	942	(20.0)	30
3212	3,382	(10.0)	32	1,200	(12.5)	47	3,382	(32.0)	1	1,200	(34.5)	16	3,382	(34.0)	1	1,200	(31.0)	16
3221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3222	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3111*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3115*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Nassau	6,033	-	-	2,142	-	-	6,033	-	-	2,142	-	-	6,033	-	-	2,142	-	-
Total	10,237	-	-	3,634	-	-	10,237	-	-	3,634	-	-	10,237	-	-	3,634	-	-
Time Savings - All Sections																		
	Passengers	Per Cent		Passengers	Per Cent		Passengers	Per Cent		Passengers	Per Cent		Passengers	Per Cent		Passengers	Per Cent	
Loss	18,367	12.1		11,867	27.2		14,868	9.8		11,994	27.5		14,908	9.8		14,949	11.4	
Over 0 to 5 min	21,111	13.9		8,354	19.2		25,062	16.5		21,093	48.3		24,181	15.9		6,808	15.6	
Over 5 to 10 min	29,669	19.5		17,832	40.8		74,913	49.1		6,251	14.3		75,978	49.9		21,392	49.0	
Over 10 to 15 min	63,332	41.6		1,486	3.4		22,201	14.6		1,381	3.2		23,494	15.5		6,615	15.1	
Over 15 to 20 min	5,278	3.5		2,289	5.3		4,903	3.2		2,339	5.4		5,084	3.3		1,431	3.3	
Over 20 to 25 min	8,130	5.3		1,646	3.8		8,309	5.5		383	0.9		6,457	4.2		1,818	4.2	
Over 25 to 30 min	5,848	3.8		120	0.3		1,362	0.9		115	0.3		1,511	1.0		426	1.0	
Over 30 to 35 min	428	0.3		-	-		409	0.3		38	0.1		550	0.4		155	0.4	
Over 35 to 40 min	-	-		-	-		136	0.1		-	-		-	-		-	-	
Total	152,163	100.0		43,594	100.0		152,163	100.0		43,594	100.0		152,163	100.0		43,594	100.0	
Fare Savings - All Sections																		
Loss	-	-		-	-		-	-		-	-		-	-		-	-	
No Change	135,415	89.0		40,471	92.8		146,130	96.0		41,452	95.1		146,130	96.0		41,452	95.1	
Over 0 to 5 cents	-	-		-	-		3,382	2.2		-	-		3,382	2.2		-	-	
Over 5 to 20 cents	6,053	4.0		609	1.4		2,651	1.8		1,200	2.8		2,651	1.8		1,200	2.8	
Over 20 to 41 cents	10,695	7.0		372	0.9		-	-		942	2.1		-	-		942	2.1	
Over 41 to 47 cents	-	-		2,142	4.9		-	-		-	-		-	-		-	-	
Total	152,163	100.0		43,594	100.0		152,163	100.0		43,594	100.0		152,163	100.0		43,594	100.0	

NOTES:

*Part of traffic section included in general area served.
 †Includes passengers originating in traffic section 2220; To Midtown Manhattan 310; To Lower Manhattan 110.
 Figures in parenthesis indicate longer running time of proposed rapid transit lines compared with existing facilities.
 Passengers shown are 1956 total weekday passengers originating by bus, automobile and L.I.R.R. in the traffic sections shown and riding to Midtown and Lower Manhattan. Passengers originating on bus lines from Nassau County are not included, since no origin-destination data for them is available. With respect to L.I.R.R. passengers, the origins shown are in accordance with results of analysis of company passenger records for the Port Washington Branch.
 This table does not show any estimate of diversion of passengers to the proposed rapid transit lines.
 No fare savings are shown in Plans B and C for Nassau County traffic sections for riding via bus lines and subways. It is assumed that some of these bus lines will be rerouted inside of city limits to contact the proposed rapid transit lines but that bus fares will not be changed.
 Present fares to Manhattan via Nassau County bus lines and subway are as follows:

Northern Boulevard Line via Flushing Terminal				
Traffic section	3211	3212	3221	
Fare	36¢ to 50¢	50¢ to 71¢	71¢ to 83¢	
Hillside Ave., Jericho Tpke and Hempstead Tpke via Jamaica Terminal				
Traffic section	3111*	3115*	3213	3222
Fare	35¢	38¢ to 65¢	38¢ to 78¢	85¢

In Plan A it is assumed that a 30¢ fare will be charged on the portion of the rapid transit line outside city limits. Fare savings shown for traffic sections 3211 and 3212 are a comparison of 30¢ direct fare with present bus-rapid transit rates.

METROPOLITAN RAPID TRANSIT COMMISSION

PLAN A

PRESENT LONG ISLAND R.R. SERVICE AND PROPOSED PORT WASHINGTON RAPID TRANSIT LINE
COMPARISON OF FARES AND RUNNING TIMES TO MANHATTAN

TABLE B

Boarding Station Westbound	Traffic Section Number	Estimated Number of Passengers Weekday, 1956, One Way L.I.R.R. (Port Washington Branch)			Present Long Island Railroad Service						Proposed Port Washington R.T. Line				Savings - Proposed R.T. Line Over L.I.R.R. to Mid-Manhattan			Savings - Proposed R.T. Line Over L.I.R.R. to Lower Manhattan		
		To Mid- and Upper Manhattan	To Lower Manhattan	Total Manhattan	Fares		Elapsed Time-Minutes		Fares		Elapsed Time-Minutes		Fares	Elapsed Time- Minutes	Fares	Elapsed Time- Minutes				
					To Mid-Manhattan	To Lower Manhattan	To Mid-Manhattan	To Lower Manhattan	To Mid-Manhattan	To Lower Manhattan										
											Cash	Commutation					Cash	Commutation	Cash	Commutation
Port Washington	3212	1,261	448	1,709	95.0¢	64.0¢	110.0¢	79.0¢	50.5	64.0	30.0¢	30.0¢	60.5	76.5	65.0¢	34.0¢	(10.0)	80.0¢	49.0¢	(12.5)
Plandome	3212	348	123	471	91.0	62.0	106.0	77.0	45.5	59.0	30.0	30.0	55.5	71.5	61.0	32.0	(10.0)	76.0	47.0	(12.5)
Manhasset	3212	1,773	629	2,402	87.0	60.0	102.0	75.0	42.0	55.5	30.0	30.0	52.0	68.0	57.0	30.0	(10.0)	72.0	45.0	(12.5)
Great Neck	3211	2,651	942	3,593	79.0	58.0	94.0	73.0	39.0	52.5	30.0	30.0	48.0	64.0	49.0	28.0	(9.0)	64.0	43.0	(11.5)
Little Neck	2210	689	245	934	76.0	57.0	91.0	72.0	36.5	50.0	15.0	15.0	44.5	60.5	61.0	42.0	(8.0)	76.0	57.0	(10.5)
Douglaston	2210	582	207	789	70.0	56.0	85.0	71.0	34.0	47.5	15.0	15.0	42.0	58.0	55.0	41.0	(8.0)	70.0	56.0	(10.5)
Bayside	2210	939	333	1,272	67.0	55.0	82.0	70.0	31.0	44.5	15.0	15.0	39.0	55.0	52.0	40.0	(8.0)	67.0	55.0	(10.5)
Auburndale	2210	401	143	544	63.0	53.0	78.0	68.0	29.5	43.0	15.0	15.0	36.5	52.5	48.0	38.0	(7.0)	63.0	53.0	(9.5)
Broadway	2210	582	206	788	58.0	51.0	73.0	66.0	27.0	40.5	15.0	15.0	34.0	50.0	43.0	36.0	(7.0)	58.0	51.0	(9.5)
Murray Hill	2210	328	116	444	58.0	49.0	73.0	64.0	25.0	38.5	15.0	15.0	32.0	48.0	43.0	34.0	(7.0)	58.0	49.0	(9.0)
Flushing	2210	373	132	505	55.0	49.0	70.0	64.0	22.5	36.0	15.0	15.0	29.0	45.0	40.0	34.0	(6.5)	55.0	49.0	(9.0)
Corona	2220	3	1	4	46.0	40.0	61.0	55.0	19.5	33.0	15.0	15.0	26.0	42.0	31.0	25.0	(6.5)	46.0	40.0	(9.0)
Elmhurst	2220	85	30	115	43.0	40.0	58.0	55.0	17.5	31.0	15.0	15.0	24.0	40.0	28.0	25.0	(6.5)	43.0	40.0	(9.0)
Woodside	2220	222	79	301	34.0	34.0	49.0	49.0	13.5	27.0	15.0	15.0	20.0	36.0	19.0	19.0	(6.5)	34.0	34.0	(9.0)
Total		10,237	3,634	13,871																
		=====	=====	=====																

Note: Figures in parentheses show longer running times of the proposed Port Washington Rapid Transit Line over present L.I.R.R. service on Port Washington branch.

METROPOLITAN RAPID TRANSIT COMMISSION

TABLE C

PLAN A

ESTIMATED RAPID TRANSIT PASSENGERS WEEKDAY, 24 HOURS, ONE WAY
FOR PROPOSED PORT WASHINGTON RAPID TRANSIT LINE VIA L.I.R.R.
CONNECTING WITH THE PROPOSED 76th STREET EAST RIVER TUNNEL

Traffic Section	Battery to Vesey Street Rapid		Vesey Street to Houston Street Rapid		North of Houston Street Rapid		Total Manhattan Rapid		Bronx Rapid		Brooklyn Rapid		Queens Rapid		Other Rapid		Totals	
	Total	Transit	Total	Transit	Total	Transit	Total	Transit	Total	Transit	Total	Transit	Total	Transit	Total	Transit	Total	Transit
<u>L.I.R.R. Passengers</u>																		
<u>Queens County</u>																		
2210)																		
*2320)	340	340	111	111	1,510	1,510	1,961	1,961	-	-	25	25	4	4	33	33	2,023	2,023
<u>Nassau County</u>																		
3211	378	359	263	250	2,204	2,094	2,845	2,703	2	2	183	174	64	61	36	34	3,130	2,974
3212	2,017	1,916	632	600	6,792	6,452	9,441	8,968	-	-	317	301	389	370	69	66	10,216	9,705
3213	935	47	246	12	2,770	139	3,951	198	21	1	578	29	272	14	83	4	4,905	246
3221	694	139	248	50	1,593	319	2,535	508	13	3	258	52	131	26	9	2	2,946	591
3222	1,040	100	413	20	2,960	300	4,413	420	90	-	557	-	315	-	93	-	5,468	420
Total L.I.R.R.	5,404	2,901	1,913	1,043	17,829	10,814	25,146	14,758	126	6	1,918	581	1,175	475	323	139	28,688	15,959
<u>Auto Passengers</u>																		
<u>Queens County</u>																		
2210)																		
*2320)	1,312	351	1,301	390	12,694	3,655	15,307	4,396	5,677	286	6,856	370	41,196	948	3,564	-	72,600	6,000
<u>Nassau County</u>																		
3211	609	183	779	234	5,274	1,582	6,662	1,999	2,792	140	2,085	104	14,948	299	894	-	27,381	2,542
3212	372	112	130	39	4,532	1,360	5,034	1,511	1,437	72	890	45	10,865	217	506	-	18,732	1,845
3213	49	10	509	102	1,891	378	2,449	490	1,297	65	4,193	210	13,875	278	1,708	-	23,522	1,043
3221	265	27	33	3	2,031	203	2,329	233	219	-	177	-	3,044	61	849	-	6,618	294
3222	168	8	-	-	425	21	593	29	584	-	299	-	3,198	64	16	-	4,690	93
*3111	91	-	55	-	1,166	-	1,312	-	372	-	358	-	3,958	-	194	-	6,194	-
*3115	206	-	129	-	872	-	1,207	-	478	-	1,026	-	7,014	-	494	-	10,219	-
Total Auto	3,072	691	2,936	768	28,885	7,199	34,893	8,658	12,856	563	15,884	729	98,098	1,867	8,225	-	169,956	11,817
<u>Bus Passengers</u>																		
<u>Queens County</u>																		
2210)																		
*2320)																	118,300	25,896
<u>Nassau County</u>																		
*3111																	100	-
*3115																	100	-
3213																	300	-
3221																	500	500
Total Bus																	119,300	26,396
Grand Total																	317,944	54,172
																	=====	=====

Notes:

Figures in each double column show total weekday passengers and estimated weekday passengers diverted to proposed rapid transit line. Distribution of total passengers is based on 1956 origin-destination survey. Local rapid transit passengers in Queens and Nassau Counties are excluded.

Analysis of L.I.R.R. passenger statistics as compared with origin-destination survey data used above indicates that approximately 2,304 weekday passengers (one way) included in Nassau County above, should be included in Queens County. Adjustment of Queens and Nassau County sub-totals is shown at the bottom of Table D.

*Part of traffic section included in general area served.

METROPOLITAN RAPID TRANSIT COMMISSION

TABLE C-1

PLAN B

ESTIMATED RAPID TRANSIT PASSENGERS WEEKDAY, 24 HOURS, ONE WAY
 FOR PROPOSED HORACE HARDING EXPRESSWAY RAPID TRANSIT LINE
 CONNECTING WITH THE PROPOSED 76th STREET EAST RIVER TUNNEL VIA L.I.R.R.

Traffic Section	Battery to Vesey Street		Vesey Street to Houston Street		North of Houston Street		Total Manhattan		Bronx		Brooklyn		Queens		Other		Totals	
	Total	Rapid Transit	Total	Rapid Transit	Total	Rapid Transit	Total	Rapid Transit	Total	Rapid Transit	Total	Rapid Transit	Total	Rapid Transit	Total	Rapid Transit	Total	Rapid Transit
<u>L.I.R.R. Passengers</u>																		
<u>Queens County</u>																		
2210)																		
*2320)	340	17	111	6	1,510	76	1,961	99	-	-	25	-	4	-	33	-	2,023	99
<u>Nassau County</u>																		
3211	378	57	263	39	2,204	331	2,845	427	2	-	183	9	64	6	36	-	3,130	442
3212	2,017	303	632	95	6,792	1,019	9,441	1,417	-	-	317	16	389	39	69	-	10,216	1,472
3213	935	140	246	37	2,770	416	3,951	593	21	1	578	29	272	27	83	-	4,905	650
3221	694	69	248	25	1,593	159	2,535	253	13	-	258	-	131	-	9	-	2,946	253
3222	1,040	104	413	42	2,960	296	4,413	442	90	-	557	-	315	-	93	-	5,468	442
Total L.I.R.R.	5,404	690	1,913	244	17,829	2,297	25,146	3,231	126	1	1,918	54	1,175	72	323	-	28,688	3,358
<u>Auto Passengers</u>																		
<u>Queens County</u>																		
2210)																		
*2320)	1,312	330	1,301	360	12,694	3,339	15,307	4,029	5,677	462	6,856	599	41,196	3,310	3,564	-	72,600	8,400
<u>Nassau County</u>																		
3211	609	91	779	117	5,274	791	6,662	999	2,792	140	2,085	104	14,948	747	894	-	27,381	1,990
3212	372	56	130	20	4,532	680	5,034	756	1,437	72	890	45	10,865	543	506	-	18,732	1,416
3213	49	7	509	76	1,891	284	2,449	367	1,297	65	4,193	210	13,875	694	1,708	-	23,522	1,336
3221	265	27	33	3	2,031	203	2,329	233	219	-	177	-	3,044	-	849	-	6,618	233
3222	168	17	-	-	425	43	593	60	584	-	299	-	3,198	-	16	-	4,690	60
*3111	91	12	55	-	1,166	50	1,312	62	372	-	358	-	3,958	-	194	-	6,194	62
*3115	206	20	129	-	872	82	1,207	102	478	-	1,026	-	7,014	-	494	-	10,219	102
Total Auto	3,072	560	2,936	576	28,885	5,472	34,893	6,608	12,856	739	15,884	958	98,098	5,294	8,225	-	169,956	13,599
<u>Bus Passengers</u>																		
<u>Queens County</u>																		
2210)																		
*2320)																	118,300	39,483
<u>Nassau County</u>																		
*3111																	100	100
*3115																	100	100
3213																	300	300
3221																	500	500
Total Bus																	119,300	40,483
Grand Total																	317,944	57,440

Notes:

Figures in each double column show total weekday passengers and estimated weekday passengers diverted to proposed rapid transit line. Distribution of total passengers is based on 1956 origin-destination survey. Local rapid transit passengers in Queens County are excluded.

Analysis of L.I.R.R. passenger statistics as compared with origin-destination survey data used above indicates that approximately 2,304 weekday passengers (one way) included in Nassau County above, should be included in Queens County. Adjustment of Queens and Nassau County sub-totals is shown at the bottom of Table D-1.

*Part of traffic section included in general area served.

METROPOLITAN RAPID TRANSIT COMMISSION

PLAN C

TABLE C-2

ESTIMATED RAPID TRANSIT PASSENGERS WEEKDAY, 24 HOURS, ONE WAY

FOR PROPOSED HORACE HARDING EXPRESSWAY RAPID TRANSIT LINE

CONNECTING WITH IRT FLUSHING LINE

Traffic Section	Battery to Vesey Street		Vesey Street to Houston Street		North of Houston Street		Total Manhattan		Bronx		Brooklyn		Queens		Other		Totals	
	Total	Rapid Transit	Total	Rapid Transit	Total	Rapid Transit	Total	Rapid Transit	Total	Rapid Transit	Total	Rapid Transit	Total	Rapid Transit	Total	Rapid Transit	Total	Rapid Transit
<u>L.I.R.R. Passengers</u>																		
<u>Queens County</u>																		
2210)																		
*2320)	340	17	111	6	1,510	76	1,961	99	-	-	25	-	4	-	33	-	2,023	99
<u>Nassau County</u>																		
3211	378	57	263	39	2,204	331	2,845	427	2	-	183	9	64	6	36	-	3,130	442
3212	2,017	303	632	95	6,792	1,019	9,441	1,417	-	-	317	16	389	39	69	-	10,216	1,472
3213	935	140	246	37	2,770	416	3,951	593	21	1	578	29	272	27	83	-	4,905	650
3221	694	69	248	25	1,593	159	2,535	253	13	-	258	-	131	-	9	-	2,946	253
3222	1,040	104	413	42	2,960	296	4,413	442	90	-	557	-	315	-	93	-	5,468	442
Total L.I.R.R.	5,404	690	1,913	244	17,829	2,297	25,146	3,231	126	1	1,918	54	1,175	72	323	-	28,688	3,358
<u>Auto Passengers</u>																		
<u>Queens County</u>																		
2210)																		
*2320)	1,312	433	1,301	472	12,694	4,373	15,307	5,278	5,677	605	6,856	784	41,196	1,733	3,564	-	72,600	8,400
<u>Nassau County</u>																		
3211	609	91	779	117	5,274	791	6,662	999	2,792	140	2,085	104	14,948	299	894	-	27,381	1,542
3212	372	56	130	20	4,532	680	5,034	756	1,437	72	890	45	10,865	217	506	-	18,732	1,090
3213	49	7	509	76	1,891	284	2,449	367	1,297	65	4,193	210	13,875	277	1,708	-	23,522	919
3221	265	27	33	3	2,031	203	2,329	233	219	-	177	-	3,044	-	849	-	6,618	233
3222	168	17	-	-	425	43	593	60	584	-	299	-	3,198	-	16	-	4,690	60
*3111	91	12	55	-	1,166	50	1,312	62	372	-	358	-	3,958	-	194	-	6,194	62
*3115	206	20	129	-	872	82	1,207	102	478	-	1,026	-	7,014	-	494	-	10,219	102
Total Auto	3,072	663	2,936	688	28,885	6,506	34,893	7,857	12,856	882	15,884	1,143	98,098	2,526	8,225	-	169,956	12,408
<u>Bus Passengers</u>																		
<u>Queens County</u>																		
2210)																		
*2320)																	118,300	39,483
<u>Nassau County</u>																		
*3111																	100	100
*3115																	100	100
3213																	300	300
3221																	500	500
Total Bus																	119,300	40,483
Grand Total																	317,944	56,249

Notes:

Figures in each double column show total weekday passengers and estimated weekday passengers diverted to proposed rapid transit line. Distribution of total passengers is based on 1956 origin-destination survey. Local rapid transit passengers in Queens County are excluded.

Analysis of L.I.R.R. passenger statistics as compared with origin-destination survey data used above indicates that approximately 2,304 weekday passengers (one way) included in Nassau County above, should be included in Queens County. Adjustment of Queens and Nassau County sub-totals is shown at the bottom of Table D-2.

*Part of traffic section included in general area served.

METROPOLITAN RAPID TRANSIT COMMISSION

TABLE D

PLAN A

ESTIMATED ANNUAL PASSENGERS, YEARS 1955, 1965 AND 1975
FOR PROPOSED PORT WASHINGTON RAPID TRANSIT LINE VIA L.I.R.R.
CONNECTING WITH THE PROPOSED 76th STREET EAST RIVER TUNNEL

Traffic Section (1)	Population			Total Rides per Capita			Annual Rides Both Ways			Increase in Annual Rides		Passengers, 1955	
	1955 (2)	1965 (3)	1975 (4)	1955 (5)	1965 (6)	1975 (7)	1955 (8)	1965 (9)	1975 (10)	Ten Years to 1965 (11)	Ten Years to 1975 (12)	Weekday One Way (13)	Annual Two Ways (14)
<u>Basic Totals - Population and Passengers (Auto, Bus and L.I.R.R.) Projected</u>													
<u>Queens Co.</u>													
2210	339	395	410										
2320*	145	154	159	247	247	247	119,612	135,600	140,500	15,988	4,900	192,923	119,612
Sub-total	484	549	569	247	247	247	119,612	135,600	140,500	15,988	4,900	192,923	119,612
<u>Nassau Co.</u>													
3211	38	45	50	498	493	492	18,917	22,200	24,600	3,283	2,400	30,511	18,917
3212	48	58	65	374	374	369	17,948	21,700	24,000	3,752	2,300	28,948	17,948
3213	92	120	130	194	203	209	17,810	24,400	27,200	6,590	2,800	28,727	17,810
3221	50	65	70	125	137	147	6,240	8,900	10,300	2,660	1,400	10,064	6,240
3222	77	130	140	82	111	124	6,298	14,400	17,400	8,102	3,000	10,158	6,298
3111*	20	24	26	195	203	209	3,902	4,900	5,400	998	500	6,294	3,902
3115*	33	40	42	194	203	209	6,398	8,100	8,800	1,702	700	10,319	6,398
Sub-total	358	482	523	217	217	225	77,513	104,600	117,700	27,087	13,100	125,021	77,513
Total	842	1,031	1,092	234	233	236	197,125	240,200	258,200	43,075	18,000	317,944	197,125
<u>Estimated Passengers Diverted to Proposed Rapid Transit Line</u>													
<u>Queens Co.</u>													
2210)							21,030	25,027	26,007	3,997	980	33,919	21,030
2320*)							21,030	25,027	26,007	3,997	980	33,919	21,030
Sub-total													
<u>Nassau Co.</u>													
3211							3,420	4,241	4,721	821	480	5,516	3,420
3212							7,161	8,099	8,559	938	460	11,550	7,161
3213							799	2,446	3,006	1,647	560	1,289	799
3221							859	1,524	1,804	665	280	1,385	859
3222							318	1,128	1,428	810	300	513	318
3111*							-	-	-	-	-	-	-
3115*							-	-	-	-	-	-	-
Sub-total							12,557	17,438	19,518	4,881	2,080	20,253	12,557
Total							33,587	42,465	45,525	8,878	3,060	54,172	33,587
Per Cent of Total Passengers							17.0	17.7	17.6				

Notes:

*Part of traffic section included in general area served.
øEstimated same as traffic section 3213.

Weekday passengers one way 1956, Column (13), from detailed statement, converted to annual two-way passengers in Column (14) and transcribed to Column (8).
Rapid Transit Passengers 1965 and 1975, Columns (9) and (10), projected on basis of adding 25% of 10 year increase in total passengers 1955 to 1965, Column (11) and adding 20% of 10 year increase in total passengers 1965 to 1975, Column (12). (Exception made in traffic section 3222, used 10% both decades.)
Local passengers on proposed rapid transit line are not included.
Analysis of L.I.R.R. passenger statistics as compared with origin-destination survey data used above indicates that approximately 1,428,000 passengers included in the 1955 sub-total for Nassau County should be included in Queens County. Recognition of this fact results in the following adjustments in the sub-totals shown above:

	Year 1955	Year 1965	Year 1975	Weekday - One Way 1955
<u>Basic Total Passengers</u>				
Adjustment	1,428	1,619	1,678	
Adjusted Sub-totals				2,304
Queens Co.	121,040	137,219	142,178	195,227
Nassau Co.	76,085	102,981	116,022	122,717
Total	197,125	240,200	258,200	317,944
<u>Estimated Rapid Transit Passengers</u>				
Adjustment	1,357	1,619	1,678	
Adjusted Sub-totals				2,189
Queens Co.	22,387	26,565	27,601	36,108
Nassau Co.	11,200	15,900	17,924	18,064
Total	33,587	42,465	45,525	54,172

METROPOLITAN RAPID TRANSIT COMMISSION

TABLE D-1

PLAN B

ESTIMATED ANNUAL PASSENGERS, YEARS 1955, 1965 AND 1975

FOR PROPOSED HORACE HARDING EXPRESSWAY RAPID TRANSIT LINE

CONNECTING WITH THE PROPOSED 76th STREET EAST RIVER TUNNEL VIA L.I.R.R.

Traffic Section (1)	Population			Total Rides per Capita			Annual Rides Both Ways			Increase in Annual Rides		Passengers, 1955	
	1955 (2)	1965 (3)	1975 (4)	1955 (5)	1965 (6)	1975 (7)	1955 (8)	1965 (9)	1975 (10)	Ten Years to 1965 (11)	Ten Years to 1975 (12)	Weekday One Way (13)	Annual Two Ways (14)
Basic Totals - Population and Passengers (Auto, Bus and L.I.R.R.) Projected													
Queens Co.													
2210													
2320*	339	395	410										
	145	154	159	247	247	247	119,612	135,600	140,500	15,988	4,900	192,923	119,612
Sub-total	484	549	569	247	247	247	119,612	135,600	140,500	15,988	4,900	192,923	119,612
Nassau Co.													
3211													
3212	38	45	50	498	493	492	18,917	22,200	24,600	3,283	2,400	30,511	18,917
3213	48	58	65	374	374	369	17,948	21,700	24,000	3,752	2,300	28,948	17,948
3221	92	120	130	194	203	209	17,810	24,400	27,200	6,590	2,800	28,727	17,810
3222	50	65	70	125	137	147	6,240	8,900	10,300	2,660	1,400	10,064	6,240
3111*	77	130	140	82	111	124	6,298	14,400	17,400	8,102	3,000	10,158	6,298
3115*	20	24	26	195	203	209	3,902	4,900	5,400	998	500	6,294	3,902
	33	40	42	194	203	209	6,398	8,100	8,800	1,702	700	10,319	6,398
Sub-total	158	482	523	217	217	225	77,513	104,600	117,700	27,087	13,100	125,021	77,513
Total	842	1,031	1,092	234	233	236	197,125	240,200	258,200	43,075	18,000	317,944	197,125
Estimated Passengers Diverted to Proposed Rapid Transit Line													
Queens Co.													
2210 †													
2320*)							29,749	34,545	35,770	4,796	1,225	47,982	29,749
Sub-total							29,749	34,545	35,770	4,796	1,225	47,982	29,749
Nassau Co.													
3211							1,508	2,329	2,809	821	480	2,432	1,508
3212							1,791	2,729	3,189	938	460	2,888	1,791
3213							1,417	3,064	3,624	1,647	560	2,886	1,417
3221							611	1,276	1,556	665	280	986	611
3222							311	2,336	2,936	2,025	600	502	311
3111*							100	350	450	250	100	162	100
3115*							125	551	691	426	140	202	125
Sub-total							5,863	12,635	15,255	6,772	2,620	9,458	5,863
Total							35,612	47,180	51,025	11,568	3,845	57,440	35,612
Per Cent of Total Passengers							18.1	19.6	19.8				

Notes:

*Part of traffic section included in general area served.

†Estimated same as traffic section 3213

Weekday passengers one way 1956, Column (13), from detailed statement, converted to annual two-way passengers in Column (14) and transcribed to Column (8).
 Rapid Transit Passengers 1965 and 1975, Columns (9) and (10), projected on basis of adding percentages of increase in total passengers as follows:
 1955 to 1965, Queens Co., 30%; Nassau Co., 25%; 1965 to 1975, Queens Co., 25%, Nassau Co., 20%.

Local passengers on proposed rapid transit line are not included.

Analysis of L.I.R.R. passenger statistics as compared with origin-destination survey data used above indicates that approximately 1,428,000 passengers included in the
 1955 sub-total for Nassau County should be included in Queens County. Recognition of this fact results in the following adjustments in the sub-totals shown above:

	Year 1955	Year 1965	Year 1975	Weekday - One Way 1955
Basic Total Passengers				
Adjustment	1,428	1,619	1,678	
Adjusted Sub-totals				2,304
Queens Co.	121,040	137,219	142,178	195,227
Nassau Co.	76,085	102,981	116,022	122,717
Total	197,125	240,200	258,200	317,944
Estimated Rapid Transit Passengers				
Adjustment	214	243	252	
Adjusted Sub-totals				345
Queens Co.	29,963	34,788	36,022	48,327
Nassau Co.	5,649	12,392	15,003	9,113
Total	35,612	47,180	51,025	57,440

METROPOLITAN RAPID TRANSIT COMMISSION

PLAN C

TABLE D-2

ESTIMATED ANNUAL PASSENGERS, YEARS 1955, 1965 AND 1975
FOR PROPOSED HORACE HARDING EXPRESSWAY RAPID TRANSIT LINE
CONNECTING WITH IRT FLUSHING LINE

Traffic Section (1)	Population			Total Rides per Capita			Annual Rides Both Ways			Increase in Annual Rides		Passengers, 1955	
	1955 (2)	1965 (3)	1975 (4)	1955 (5)	1965 (6)	1975 (7)	1955 (8)	1965 (9)	1975 (10)	Ten Years to 1965 (11) (Thousands)	Ten Years to 1975 (12) (Thousands)	Weekday One Way (13)	Annual Two Ways (14) (Thousands)
<u>Basic Totals - Population and Passengers (Auto, Bus and L.I.R.R.) Projected</u>													
<u>Queens Co.</u>													
2210													
2320*	339	395	410										
	<u>145</u>	<u>154</u>	<u>159</u>										
Sub-total	484	549	569	247	247	247	119,612	135,600	140,500	15,988	4,900	192,923	119,612
<u>Nassau Co.</u>													
3211													
3212	38	45	50	498	493	492	18,917	22,200	24,600				
3213	48	58	65	374	374	369	17,948	21,700	24,000	3,283	2,400	30,511	18,917
3221	92	120	130	194	203	209	17,948	21,700	24,000	3,752	2,300	28,948	17,948
3222	50	65	70	125	137	147	17,810	24,400	27,200	6,590	2,800	28,727	17,810
3111*	77	130	140	82	111	124	6,240	8,900	10,300	2,660	1,400	10,064	6,240
3115*	20	24	26	195	203	209	6,298	14,400	17,400	8,102	3,000	10,158	6,298
	<u>33</u>	<u>40</u>	<u>42</u>	<u>194</u>	<u>203</u>	<u>209</u>	<u>6,398</u>	<u>8,100</u>	<u>8,800</u>	<u>998</u>	<u>500</u>	<u>6,294</u>	<u>3,902</u>
Sub-total	358	482	523	217	217	225	77,513	104,600	117,700	1,702	700	10,319	6,398
Total	842	1,031	1,092	234	233	236	197,125	240,200	258,200	27,087	13,100	125,021	77,513
<u>Estimated Passengers Diverted to Proposed Rapid Transit Line</u>													
<u>Queens Co.</u>													
2210)													
2320*)							29,749	34,545	35,770	4,796	1,225	47,982	29,749
Sub-total							29,749	34,545	35,770	4,796	1,225	47,982	29,749
<u>Nassau Co.</u>													
3211													
3212							1,230	2,051	2,531	821	480	1,984	1,230
3213							1,589	2,527	2,987	938	460	2,562	1,589
3221							1,159	2,806	3,366	1,647	560	1,869	1,159
3222							611	1,276	1,556	665	280	986	611
3111*							311	2,336	2,936	2,025	600	502	311
3115*							100	350	450	250	100	162	100
							<u>125</u>	<u>551</u>	<u>691</u>	<u>426</u>	<u>140</u>	<u>202</u>	<u>125</u>
Sub-total							5,125	11,897	14,517	6,772	2,620	8,267	5,125
Total							34,874	46,442	50,287	11,568	3,845	56,249	34,874
Per Cent of Total Passengers							17.7	19.3	19.5				

Notes:

*Part of traffic section included in general area served.
 Estimated same as traffic section 3213.

Weekday passengers one way 1956, Column (13), from detailed statement, converted to annual two-way passengers in Column (14), and transcribed to Column (8).
 Rapid Transit Passengers 1965 and 1975, Columns (9) and (10), projected on basis of adding percentages of increase in total passengers as follows:
 1955 to 1965 Queens Co., 30%; Nassau Co., 25%; 1965 to 1975, Queens Co., 25%; Nassau Co., 20%.

Local passengers on proposed rapid transit line are not included

Analysis of L.I.R.R. passenger statistics as compared with origin-destination survey data used above indicates that approximately 1,428,000 passengers included in the 1955 sub-total for Nassau County should be included in Queens County. Recognition of this fact results in the following adjustments in the sub-totals shown above:

	Year 1955	Year 1965	Year 1975	Weekday - One Way 1955
<u>Basic Total Passengers</u>				
Adjustment	1,428	1,619	1,678	
Adjusted Sub-totals				2,304
Queens Co.	121,040	137,219	142,178	
Nassau Co.	<u>76,085</u>	<u>102,981</u>	<u>116,022</u>	195,227
Total	197,125	240,200	258,200	<u>122,717</u>
<u>Estimated Rapid Transit Passengers</u>				
Adjustment	214	243	252	
Adjusted Sub-totals				345
Queens Co.	29,963	34,788	36,022	
Nassau Co.	<u>4,911</u>	<u>11,654</u>	<u>14,265</u>	48,327
Total	34,874	46,442	50,287	<u>7,922</u>
				56,249

METROPOLITAN RAPID TRANSIT COMMISSION
ESTIMATED ANNUAL PASSENGERS AND PASSENGER REVENUE
PROPOSED ALTERNATE LONG ISLAND RAPID TRANSIT LINES

TABLE E

	Annual Passengers (Thousands)	1955 Average Fare (Cents)	Annual Revenue (Thousands)	Annual Passengers (Thousands)	1965 Average Fare (Cents)	Annual Revenue (Thousands)	Annual Passengers (Thousands)	1975 Average Fare (Cents)	Annual Revenue (Thousands)
<u>Plan A</u>									
<u>Port Washington Rapid Transit Line</u>									
Through Riding From Queens County	22,400	14.77	\$3,308	26,600	14.77	\$3,929	27,600	14.77	\$ 4,077
Through Riding From Nassau County	<u>11,200</u>	<u>29.54</u>	<u>3,308</u>	<u>15,900</u>	<u>29.54</u>	<u>4,697</u>	<u>17,900</u>	<u>29.54</u>	<u>5,288</u>
Sub-total	33,600		6,616	42,500		8,626	45,500		9,365
Local Riding (12%)	<u>4,000</u>	<u>14.77</u>	<u>591</u>	<u>5,100</u>	<u>14.77</u>	<u>753</u>	<u>5,500</u>	<u>14.77</u>	<u>812</u>
Total Plan A	37,600		\$7,207	47,600		\$9,379	51,000		\$10,177
	=====		=====	=====		=====	=====		=====
<u>Plan B</u>									
<u>Horace Harding Expressway Rapid Transit Line</u> <u>(via 76th Street Tunnel)</u>									
Through Riding From Queens County	30,000	14.77	\$4,431	34,800	14.77	\$5,140	36,000	14.77	\$ 5,317
Through Riding From Nassau County	<u>5,600</u>	<u>14.77</u>	<u>827</u>	<u>12,400</u>	<u>14.77</u>	<u>1,831</u>	<u>15,000</u>	<u>14.77</u>	<u>2,216</u>
Sub-total	35,600		5,258	47,200		6,971	51,000		7,533
Local Riding (6%)	<u>2,100</u>	<u>14.77</u>	<u>310</u>	<u>2,800</u>	<u>14.77</u>	<u>414</u>	<u>3,100</u>	<u>14.77</u>	<u>458</u>
Total Plan B	37,700		\$5,568	50,000		\$7,385	54,100		\$ 7,991
	=====		=====	=====		=====	=====		=====
<u>Plan C</u>									
<u>Horace Harding Expressway Rapid Transit Line</u> <u>(via IRT Flushing Line)</u>									
Through Riding From Queens County	30,000	14.77	\$4,431	34,800	14.77	\$5,140	36,000	14.77	\$ 5,317
Through Riding From Nassau County	<u>4,900</u>	<u>14.77</u>	<u>724</u>	<u>11,600</u>	<u>14.77</u>	<u>1,713</u>	<u>14,300</u>	<u>14.77</u>	<u>2,112</u>
Sub-total	34,900		5,155	46,400		6,853	50,300		7,429
Local Riding (6%)	<u>2,100</u>	<u>14.77</u>	<u>310</u>	<u>2,800</u>	<u>14.77</u>	<u>414</u>	<u>3,000</u>	<u>14.77</u>	<u>443</u>
Total Plan C	37,000		\$5,465	49,200		\$7,267	53,300		\$ 7,872
	=====		=====	=====		=====	=====		=====

Notes:

Passenger Revenues are based on present 15¢ fare.
 In Plant A, 2 fares are included for through passengers crossing the Queens-Nassau County Line.
 Plans B and C do not cross the Queens-Nassau County Line.

METROPOLITAN RAPID TRANSIT COMMISSION

TABLE F

PLAN A

ESTIMATE OF COST AS OF THE END OF 1956

OF THE

PROPOSED PORT WASHINGTON RAPID TRANSIT LINE VIA L.I.R.R.
CONNECTING WITH THE PROPOSED 76th ST. EAST RIVER TUNNEL LINE

<u>Property Classification</u>	<u>Amount</u>
Approximate Roadway Mileage	<u>15.49 mi.</u>
<u>Modifications to LIRR to Meet NYCTA Standards</u>	
Right of Way	-
Other Land	-
Substation Sites	\$ 60,000
Parking Lots and Improvements	
Total Other Land	<u>60,000</u>
Grading	11,000
Track and Roadway, Exclusive of Grading	74,000
Highway Crossings	254,000
Signals and Interlockers	1,986,000
Communication System	10,000
Distribution System	19,000
Third Rail	8,000
Feeders and Accessories	
Total Distribution System	<u>27,000</u>
Stations, Miscellaneous Buildings and Structures	408,000
Substation Buildings	-
Substation Equipment	-
Sub-total	<u>2,830,000</u>
Engineering 10% of Sub-total	<u>283,000</u>
Total Modifications to LIRR	<u>3,113,000</u>
<u>Estimated Reproduction Cost, Depreciated - North Side Branch</u> <u>(As Indicative of Value of Existing Road)</u>	
From Harold Tower to Win Tower	2.07 Miles
From Win Tower to Port Washington	14.06 "
Total	16.13 "
	<u>1,210,000</u>
	<u>7,240,000</u>
	<u>8,450,000</u>
	<u>\$ 11,563,000</u>
Grand Total, Exclusive of Cars	
<u>For Double Tracking Existing Road between</u> <u>Great Neck and Port Washington,</u> <u>add to the above total</u>	<u>\$ 3,479,000</u>

METROPOLITAN RAPID TRANSIT COMMISSION

TABLE F-1

PLAN B

ESTIMATE OF COST AS OF THE END OF 1956

OF THE

PROPOSED HORACE HARDING EXPRESSWAY RAPID TRANSIT LINE CONNECTING

WITH THE PROPOSED 76th ST. EAST RIVER TUNNEL LINE VIA L.I.R.R.

<u>Property Classification</u>	<u>Horace Harding Expressway & Flushing Meadows Park</u>	<u>Modifications to L.I.R.R.</u>	<u>Connection To Proposed 76th St. East River Tunnel Line</u>	<u>Total</u>
<u>Approximate Roadway Distance in Miles</u>	<u>6.99</u>	<u>3.94</u>	<u>0.00</u>	<u>10.93</u>
Right of Way	\$ 3,200,000			\$ 3,200,000
Other Land				
Substation Sites	84,000			84,000
Parking Lots and Improvements	<u>125,000</u>			<u>125,000</u>
Total Other Land	<u>209,000</u>			<u>209,000</u>
Grading Including Demolition	1,562,000			1,562,000
Barriers	1,630,000			1,630,000
Track and Roadway, Exclusive of Grading	2,503,000	\$ 10,000	\$ 15,000	2,528,000
Elevated Structures	2,158,000			2,158,000
Bridges, Trestles and Culverts	1,140,000			1,140,000
Highway Crossings	413,000			413,000
Signals and Interlockers	976,000	543,000	100,000	1,619,000
Communication System	100,000	57,000	-	157,000
Distribution System				
Third Rail	637,000	-	3,000	640,000
Feeders and Accessories	<u>717,000</u>	<u>-</u>	<u>4,000</u>	<u>721,000</u>
Total Distribution System	<u>1,354,000</u>	<u>-</u>	<u>7,000</u>	<u>1,361,000</u>
Stations, Miscellaneous Buildings and Structures	1,158,000		40,000	1,198,000
Substation Buildings	225,000			225,000
Substation Equipment	<u>1,823,000</u>			<u>1,823,000</u>
Sub-total	<u>18,451,000</u>	<u>610,000</u>	<u>162,000</u>	<u>19,223,000</u>
Engineering 10% of Sub-total	<u>1,845,000</u>	<u>61,000</u>	<u>16,000</u>	<u>1,922,000</u>
Grand Total, Exclusive of Cars	\$ <u>20,296,000</u>	\$ <u>671,000</u>	\$ <u>178,000</u>	\$ <u>21,145,000</u>

UNITED STATES DEPARTMENT OF AGRICULTURE

WATER RESOURCES DIVISION

WATER RESOURCES DIVISION

WATER RESOURCES DIVISION

WATER RESOURCES DIVISION

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METROPOLITAN RAPID TRANSIT COMMISSION

TABLE F-2

PLAN C

ESTIMATE OF COST AS OF THE END OF 1956

OF THE

PROPOSED HORACE HARDING EXPRESSWAY RAPID TRANSIT LINE

CONNECTING WITH THE IRT FLUSHING LINE

Property Classification

Amount

Approximate Roadway Distance in Miles

6.99

\$ 3,200,000

Right of Way

Other Land

84,000

Substation Sites

125,000

Parking Lots & Improvements

209,000

Total Other Land

Grading including Demolition

1,556,000

Barriers

1,630,000

Track and Roadway, Exclusive of Grading

2,642,000

Elevated Structures

2,400,000

Bridge, Trestles and Culverts

1,140,000

Highway Crossings

413,000

Signals and Interlockers

976,000

Communication System

120,000

Distribution System

682,000

Third Rail

762,000

Feeders and Accessories

1,444,000

Total Distribution System

Stations, Miscellaneous Buildings

1,158,000

and Structures

225,000

Substation Buildings

1,823,000

Substation Equipment

18,936,000

Sub-total

1,894,000

Engineering 10% of Sub-total

\$20,830,000

Grand Total, Exclusive of Cars

Summary

2001-2002

2003-2004

2005-2006

2007-2008

2009-2010 Property Classifications

2011-2012 Property Classifications

2013-2014 Property Classifications

2015-2016 Property Classifications

2017-2018 Property Classifications

2019-2020 Property Classifications

2021-2022 Property Classifications

2023-2024 Property Classifications

2025-2026 Property Classifications

2027-2028 Property Classifications

2029-2030 Property Classifications

2031-2032 Property Classifications

2033-2034 Property Classifications

2035-2036 Property Classifications

2037-2038 Property Classifications

2039-2040 Property Classifications

2041-2042 Property Classifications

2043-2044 Property Classifications

2045-2046 Property Classifications

2047-2048 Property Classifications

2049-2050 Property Classifications

2051-2052 Property Classifications

2053-2054 Property Classifications

METROPOLITAN RAPID TRANSIT COMMISSION

TABLE F-2

PLAN CESTIMATE OF COST AS OF THE END OF 1956OF THEPROPOSED HORACE HARDING EXPRESSWAY RAPID TRANSIT LINECONNECTING WITH THE IRT FLUSHING LINEProperty ClassificationAmount

Approximate Roadway Distance in Miles	<u>6.99</u>
Right of Way	\$ 3,200,000
Other Land	
Substation Sites	84,000
Parking Lots & Improvements	<u>125,000</u>
Total Other Land	<u>209,000</u>
Grading including Demolition	1,556,000
Barriers	1,630,000
Track and Roadway, Exclusive of Grading	2,642,000
Elevated Structures	2,400,000
Bridge, Trestles and Culverts	1,140,000
Highway Crossings	413,000
Signals and Interlockers	976,000
Communication System	120,000
Distribution System	
Third Rail	682,000
Feeders and Accessories	<u>762,000</u>
Total Distribution System	<u>1,444,000</u>
Stations, Miscellaneous Buildings and Structures	1,158,000
Substation Buildings	225,000
Substation Equipment	<u>1,823,000</u>
Sub-total	<u>18,936,000</u>
Engineering 10% of Sub-total	<u>1,894,000</u>
Grand Total, Exclusive of Cars	<u><u>\$20,830,000</u></u>

TABLE G

ESTIMATED INCOME ACCOUNTS AND OPERATING STATISTICS

YEARS 1955, 1965 AND 1975

Income Account

Passenger Revenue	
Other Revenue	

Total Revenue

Operating Expenses:

Maintenance of Way and Structures

Maintenance of Equipment

Power

Operation of Cars

Operation of Cars Injuries and Damages

General and Miscellaneous (Including Pensions, etc.)

Total (Excluding Depreciation and Taxes)

Taxes

Total Operating Expenses Including Taxes

Operating Income*

Allowance for Interest and Depreciation

Net Income*

*Figures in parentheses are deficits.

Basic Statistics

Passengers:

Through Riding
Local Riding

Total

Passenger Revenue:

Through Riding
Local Riding

Total

Passengers per Car Mile

Passenger
Car Miles

Car Miles
Miles of Track

Miles of Track
Indicative Cost of Facilities:

Indicative Cost of Facilities (See Tables F, F-1, F-2)
Road and Equipment (See Tables F, F-1, F-2)

Add Second Track in Nassau Co. (See Table F)

Additional Substation Equipment (See Tables F-1, F-2)

Cars (New) @ \$143,000 (Plans A & B); @ \$125,000 (Plan C)

Total

Cars Required
Headways (Minutes):

Peak

Peak
Base

METROPOLITAN RAPID TRANSIT COMMISSION

TABLE H

ESTIMATED ANNUAL PASSENGERS ON LONG ISLAND RAILROAD SYSTEM BY COUNTIES

AND ANNUAL RIDES PER CAPITA

FOR YEARS 1933 TO 1955 AND PROJECTED TO 1975

Year	Kings and Queens Counties			Nassau County			Suffolk County			Total Nassau and Suffolk Counties			Total		
	Total Passengers (Thousands)	Population (Thousands)	Annual Rides Per Capita	Total Passengers (Thousands)	Population (Thousands)	Annual Rides Per Capita	Total Passengers (Thousands)	Population (Thousands)	Annual Rides Per Capita	Total Passengers (Thousands)	Population (Thousands)	Annual Rides Per Capita	Total Passengers (Thousands)	Population (Thousands)	Annual Rides Per Capita
<u>Estimated Distribution of Actual Total Passengers</u>															
1933	31,539	3,809	8.3	42,271	335	126.2	6,132	171	35.9	48,403	506	95.7	79,942	4,315	18.5
1934	29,356	3,835	7.7	43,396	345	125.8	6,382	175	36.5	49,778	520	95.7	79,134	4,355	18.2
1935	27,118	3,862	7.0	43,901	356	123.3	6,652	179	37.2	50,553	535	94.5	77,671	4,397	17.7
1936	26,930	3,888	6.9	48,005	366	131.2	7,344	183	40.1	55,349	549	100.8	82,279	4,437	18.5
1937	23,696	3,915	6.1	46,507	376	123.7	7,275	186	39.1	53,782	562	95.7	77,478	4,477	17.3
1938	20,163	3,942	5.1	43,394	386	112.4	6,838	190	36.0	50,232	576	87.2	70,395	4,518	15.6
1939	22,516	3,969	5.7	53,154	397	133.9	8,430	193	43.7	61,584	590	104.4	84,100	4,559	18.4
1940	19,294	3,996	4.8	50,145	407	123.2	8,109	197	41.2	58,254	604	96.4	77,548	4,600	16.9
1941	16,453	4,025	4.1	47,009	434	108.3	7,723	205	37.7	54,732	639	85.7	71,185	4,664	15.3
1942	18,213	4,055	4.5	57,707	460	125.5	9,502	213	44.6	67,209	673	99.9	85,422	4,728	18.1
1943	23,881	4,084	5.8	70,136	487	144.0	11,940	221	54.0	82,076	708	115.9	105,957	4,792	22.1
1944	25,744	4,114	6.3	70,598	513	137.6	12,366	229	54.0	82,964	742	111.8	108,708	4,856	22.4
1945	27,685	4,143	6.7	71,519	540	132.4	12,853	237	54.2	84,372	777	108.6	112,057	4,920	22.8
1946	29,688	4,173	7.1	72,872	566	128.7	13,279	245	54.2	86,151	811	106.2	115,839	4,984	23.2
1947	26,713	4,202	6.4	72,732	593	122.7	13,357	253	52.8	86,089	846	101.8	112,802	5,048	22.3
1948	23,933	4,231	5.7	72,200	619	116.6	13,318	261	51.0	85,518	880	97.2	109,451	5,111	21.4
1949	17,931	4,260	4.2	67,070	646	103.8	12,406	268	46.3	79,476	914	87.0	97,407	5,174	18.8
1950	13,290	4,289	3.1	65,037	673	96.6	12,159	276	44.1	77,196	949	81.3	90,486	5,238	17.3
1951	10,346	4,326	2.4	64,107	733	87.5	11,916	310	38.4	76,023	1,043	72.9	86,369	5,369	16.1
1952	9,213	4,363	2.1	63,201	794	79.6	11,056	344	32.1	74,257	1,138	65.3	83,470	5,501	15.2
1953	9,166	4,401	2.1	65,901	854	77.2	11,823	378	31.3	77,724	1,232	63.1	86,890	5,633	15.4
1954	8,688	4,438	2.0	65,160	915	71.2	12,127	411	29.5	77,287	1,326	58.3	85,975	5,764	14.9
1955	8,044	4,475	1.8	63,908	975	65.5	12,463	445	28.0	76,371	1,420	53.8	84,415	5,895	14.3
<u>Estimated Projections to 1975</u>															
1960	6,150	4,550	1.4	62,000	1,180	52.5	14,000	585	23.9	76,000	1,765	43.1	82,150	6,315	13.0
1965	4,700	4,575	1.0	61,000	1,280	47.7	15,900	695	22.9	76,900	1,975	38.9	81,600	6,550	12.5
1970	3,650	4,575	0.8	59,000	1,355	43.5	17,700	775	22.8	76,700	2,130	36.0	80,350	6,705	12.0
1975	2,800	4,575	0.6	57,000	1,400	40.7	19,300	845	22.8	76,300	2,245	34.0	79,100	6,820	11.6

NOTES: Population to 1950 is based on U. S. Census.

Projections of population to 1975 are based on estimates by Regional Plan Association.

Total passengers for L.I.R.R. System are actual as reported for all years to and including 1955.

Distribution of L.I.R.R. passengers by counties to year 1955 was made in proportion to recorded sales of commutation tickets by stations for through riding.

Projections of passengers to 1975 were made separately by counties, including consideration of the trends of total passengers and of rides per capita.